DOCUMENT RESUME

ED 424 668 EA 029 439

AUTHOR Hughes, Jonathon T.; Rodabaugh, Karl
TITLE Multimedia Budget Presentations.
INSTITUTION Association of School Business Officials International, Reston, VA.
ISBN ISBN-0-910170-73-8
PUB DATE 1998-00-00
NOTE 99p.
AVAILABLE FROM ASBO International, 11401 North Shore Dr., Reston, VA 20190; Tel: 703-478-0405 ($50; ASBO members, $35).
PUB TYPE Books (010) -- Guides - Non-Classroom (055)
EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS *Budgeting; *Computer Software; Computer Software Selection; Educational Technology; Elementary Secondary Education; *Multimedia Instruction; *Multimedia Materials; Teaching Methods
IDENTIFIERS Multimedia Technology

ABSTRACT

This book provides an overview of the potential of multimedia budget proposals. The text reviews the fundamentals of multimedia, emphasizing how it improves communication by using multiple levels of input. A process for analyzing many of the budget decisions that must be made, as adapted from Robert Finney's five-step process of "Gap Analysis," is outlined. Tips for applying multimedia techniques to the budget process to help users analyze information and make decisions are followed by concrete suggestions for the type of multimedia graphs and charts that are appropriate at each stage of the budget-development process. Numerous examples of the types of charts that can be used to present descriptive, comparative, and summative information to the viewer are given. Administrators can learn how to combine strategic graphing tools to create a multimedia presentation. Advice on the elements of effective multimedia school-budget presentations are detailed, along with various tips on setting up a room for such a presentation. The text concludes with a recap of major points. (Contains approximately 135 references.) (RJM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 424 668

EA

Multimedia Budget Presentations

Jonathan T. H...
Karl Rodabaugh

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

D. Tharpe

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

BEST COPY AVAILABLE

2

EA 029 439

Multimedia Budget Presentations

Jonathon T. Hughes
Karl Rodabaugh

Published by the Association of School Business Officials International

Multimedia Budget Presentations

Copyright 1998 by the Association of School Business Officials International
All Rights Reserved.

Printed in the United States of America

For more information or to purchase additional copies, contact:

ASBO International
11401 North Shore Dr.
Reston, VA 20190
703/478-0405

ISBN # 0-910170-73-8

Multimedia Budget Presentations

Foreward v

Preface ix

1. The Multimedia Incentive 1

2. Multimedia Fundamentals 9

3. Applying Multimedia Techniques to the School Budget Process 23

4. The Graphically Thinking Business Manager.....33

5. Multimedia Production 51

6. The Effective Multimedia School Budget Presentation.....61

7. On Becoming a Digital Business Administrator.....71

Bibliography 83

About the Authors 91

Foreward

Applications of computer technology in the form of multimedia presentation tools, if utilized to full advantage, may soon become the school administrator's most effective tools-of-the-trade.

With these words, Dr. Hughes and Dr. Rodabaugh frame succinctly the new imperative that school business administrators face. Less than twenty years ago, only the most forward-looking business administrators were using Lotus 1-2-3 and Excel to perform spreadsheet calculations. As computer software has improved, the bag of analytical tools that we have available has increased and become more robust. Today, virtually every school business administrator considers the use of spreadsheet software necessary and vital. As we are increasingly more subject to scrutiny and accountability, it is important for us to be able to express complex concepts in as clear and concise a manner as possible. The use of multimedia software presents an opportunity to not only present such information but to convey strategic goals, budget development guidelines, changes in student performance and the rationale behind budgetary decisions quickly and plainly.

Were Drs. Hughes and Rodabaugh to stop here, this book would provide a great deal of valuable information. However, they go much further in offering basic information on the fundamentals of multimedia. Just a few short years ago, there were only a few spreadsheet alternatives. Likewise, presentation media such as Harvard Graphics allowed only a few colors to be displayed, graphics generally required plotters for color reproduction, and the type of graphics that could be produced by most presentation software was limited to pie charts, bar graphs, and line graphs. The explosion of multimedia alternatives now permits color gradients that approach the limits of human vision, graphics capabilities that are limited only by the imagination, and charts and graphs easily created by the user. In fact, many software alternatives permit integration of media elements from other packages and make use of animation and sound. Indeed, the authors caution that the use of multimedia software can be addictive!

In Chapter 2, the authors review the fundamentals of multimedia.

They emphasize that multimedia can help to improve communication by providing multiple levels of input to the viewer. A sample computer setup is described, and a number of commonly available and relatively inexpensive software packages are presented to the reader. Given that so many computers come with software installed, it is very likely that the reader will already have some of these packages. The capability of software is briefly reviewed, and the reader is informed of the various features that are available in these packages.

The authors then explain how multimedia techniques may be applied to the budget process to help the user more completely analyze and make critical decisions. They first describe the analytical and informational objectives of a typical site-based district management team. The difference between object-focused (past allocations by budget code), district-focused (how did the students perform on the last standardized test, and what performance levels do you wish to achieve next year), and community-focused (budgetary implications of the local community's structure and environment) objectives is described. A clear understanding of each helps the school business administrator to better explicate the forces that drive his or her budget. An emphasis is placed on the importance of the mission and goals of the district, as they generally serve as drivers of a school budget. The authors describe a process to analyze many of the budget decisions that must be made as adapted from Robert Finney's five-step process of "Gap Analysis."

This focus sets the stage for Chapter 4, which presents concrete suggestions for the type of multimedia graphs and charts that are appropriate at each stage of the budget development process. Chapter 4 gives numerous examples of the types of charts can be used to present descriptive, comparative, and summative information to the viewer. Examples are taken from commonly available graphics packages, such as Harvard Graphics, PowerPoint, Astound, Active Office and Snap Graphics. Here, the difference between group and process charts is explained and detailed. Performance graphics tools – those we most commonly associate with the term "graphics software" – are also described. And strategic graphing tools that will help with option analysis, decision analysis, and implementation analysis are reviewed in detail. After applying just some of these alternatives to ordinary decision making, the school business administrator might well find himself

relying on these graphics in the typical workday to help make decisions in the business office more logical and analytical.

Chapter 5 helps the school business administrator put all of these elements together to actually create a multimedia presentation. The authors first describe the planning phase for a typical presentation and provide a series of four sensible steps to assist the reader in planning the production. They remind the reader to consider the audience, set goals for the presentation, review the logistics such as time and location, and determine which strategy will best achieve a good presentation. They then move to the implementation phase. Basic elements of implementation are listed and various means of obtaining the raw elements needed for the final presentation are detailed.

Chapter 6 gives the reader sound advice on the elements of effective multimedia school budget presentations. The authors take the reader through the basic elements of successful presnetations: the introduction, mission statement, goals, budget and fiscal comparisons, breakout costs, drivers and balancers, tolerances, cycles and forces, and summary and conclusions. The authors caution the reader that good logistics are critical to a successful presentation. Presenters should consider lighting, sound, possible interruptions, room temperature, seating, computer configurations, rehearsal and backup. While many of these items might sound elementary, most readers have probably witnessed an excellent presentation that was marred by the presenters failure to consider and plan ahead for one or more of these possible problems. How often has the reader attended a presentation that lacked sufficient seating, where the speaker couldn't be properly heard, or had an equipment failure? The authors stress that wherever possible the presenter should check the location in advance to ensure that each of these important considerations is addressed. Since the reader generally has the advantage of knowing the building setup (most budget presentations occur in our own schools), they should be able to check logistics well in advance.

The authors conclude in chapter 7 by recapping the major points covered. They review the elements of multimedia, types of communication strategies, and what's available in the multimedia author's toolbox. A summary of the four different types of software tools is presented, and a checklist is provided for convenient reference. In addition, a list of personal multimedia checkpoints is provided. Appearance, attitude,

mannerisms, preparedness, confidence and multimedia visuals are discussed. Some of the advice might seem elementary at first, but the reminder is always necessary and will help the presenter be better prepared and relaxed.

This book is a must for any school business administrator who is currently making multimedia budget presentations or who plans to do so. This means that every school business official should have this book on their shelf. Even the most experienced multimedia presenter will find valuable tips, hints and suggestions that will improve his or her acumen and the level of presentation. Firsthand experience indicates that Murphy's Law is always at work. Anyone who has seen a presentation fail knows the importance of backup and preplanning. This book provides a solid bridge between theory and reality by suggesting several inexpensive software alternatives while including a liberal amount of visual examples.

It is imperative that we all embrace technology. As our analytical options multiply, our accountability will increase. The school business administrator is no longer limited to presenting budget and enrollment figures. We are now being called upon to present student and teacher performance data, indicate trends, work as strategic planners, and provide leadership in all areas of the school community. The school business administrator who embraces multimedia will find himself called upon more and more to assist other departments in collaborating and producing presentations for them. This will give the school business administrator a better understanding of the entire operation and make him or her more valuable to the organization.

In *Leadership Is an Art*, Max DePree said: "The first responsibility of a leader is to define reality." Drs. Hughes and Rodabaugh have given us an important reference that will allow us to follow Depree's maxim with clarity and confidence.

This book and increased use of multimedia provide the school business administrator with yet another tool and the means to do so with clarity and confidence.

James A. Feltman, RSBA
Associate Superintendent Operations
Commack Union Free School District
Commack, New York

Preface

Today's multimedia budget presentation software provides a rich environment for conceptualizin and working through complex problems in the area of school system budgeting as well as in other areas. As such, it is an information management tool that should and does affect the way executives think about their work.

Using presentation software and "authoring" techniques may help school business managers build a hierarchy of budget analysis and interpretive thinking, from the points of view of the individual teacher to the department to the school to the district. This "story" development skill in the communication of complex ideas allows the budget developer to think in new ways, realizing that the "tensions" at particular budget levels may be false.

Presentation graphics packages are primarily communication tools. Using one to develop a presentation helps clarify one's thinking just as writing a speech does. Developing graphs to display data helps reveal their significance and underscore particular arguments. For example, graphing kindergarten enrollment projections beside 12th grade enrollment projections make clear the importance of enrollment as a budget driver in a school district.

In general then, computer software tools help admininstrators make decisions through analysis and planning. At the same time, these tools affect the thought processes by making it easier to calculate and avoid the need to emphasize calculation over other types of thinking.

In summary, this book links communication technology and analysis, two skills current school business administrators need to continually build and strengthen. The book does not pretend to teach full blown budget development and implementation nor does it replace the myriad texts and self-help books about computer presentation techniques. Rather, this book is a summary of why these skills are critical for today's business administrators and how they might apply the analytical power of these packages within an area educators deal with, the budget.

Every business administrator needs to acquire budget analysis skills and, potentially more critical, computer presentation skills. The skills, techniques, and tips of budget presentations and analysis are included to

guide the business administrator, at whatever level, to understand the power of communicating with this new media. It is the beginning of the process all business administrators must understand in order to build effective multimedia budget presentations.

Jonathan Hughes, Ph.D.
Karl Rodabaugh, Ph.D.

The Multimedia Incentive

The school budget process has become so technical and complex that related public budget presentations often are virtually incomprehensible to all but the few district constituents who have both the background to comprehend the jargon and the time to master the budget's complexity. These circumstances have transformed the budget processes in many jurisdictions into exclusive or elitist functions carried on with meaningful involvement by no more than a small fraction of district constituents. Some commentators recommend, as a basic strategy for improvement, an "ecological approach" to the budget process – especially in those locales where site-based budgeting has been implemented. Under this approach, the budget should be viewed in one important sense as a tool for fostering an awareness of the complete fiscal picture among district constituents. However, for this to work, the budget must be developed as openly as possible and with as much consideration as practicable of all factors that influence the district's financial condition. As an essential feature of the process, district leaders must maintain open lines of communication with the public in order to promote a wider public understanding of budget committee recommendations, to clarify the relationship of budgetary decisions to district goals and plans, and to create a positive atmosphere for further consideration of the budget.

Once the budget has been developed, the major focus should shift to the effective public presentation of the budget – with the primary goal being to gain the support of district constituents. Toward that end, school administrators should exploit multimedia technology as a tool for enhancing their roles as financial leaders within their districts. This mul-

timedia incentive exists within a larger context where leadership, management, technology and communications are four essential components of a new organizational scheme for improving the effectiveness of school business administration. To realize their ultimate potential within the new organizational scheme, school business officials must learn to implement managerial applications of computer technology and to communicate at a higher level in keeping with the challenges of the new "information age." Indeed, a new "communications imperative" requires that all school administrators be capable of exercising leadership in part by defining reality (regarding such key matters as the budget or the district's educational vision) through proficient employment of the latest multimedia technologies. By utilizing the power and flexibility of multimedia technologies, the superintendent or the business administrator can control the so-called "information commodity" in a way described by Patterson et al. (in *Productive School Systems for a Non-Rational World*, 1986) as necessary to exert any meaningful impact on an educational organization's culture and vision.

The need for more effective budget presentations comes at a time when numerous factors have made both school boards and the general public more concerned with the district financial picture. According to Berryman and Bailey (*The Double Helix of Education and the Economy*, 1993), the relationship between education and the economy has become intrinsically intertwined. The effective budget presentation must empower the audience to comprehend not only the complex socioeconomic and political forces affecting the budget, but also the way in which district administrators formulated the financial aspects of their strategy for achieving the district's educational vision. Indeed, district constituents must be informed as clearly as possible of the central role of the budget not only as a management tool for projecting the impact on district revenues and expenditures of particular trends or policies, but also as the financial expression of district goals and objectives.

No longer can the typical budget presentation be approached as perfunctorily as in the case of the following "semi-factual caricature" of a superintendent's brief comments which might have been delivered in 1970:

"Good evening, ladies and gentlemen. As most of you know, I am Dr. Smith, your superintendent of schools. Each of our school board members has before him a copy of the proposed budget for 1970. For any interested citizens living in our district, there are a few extra copies on the table to my far right. More copies will be made available at the board office tomorrow morning. Due to a number of factors, the overall budget reflects a proposed seven percent increase over last year. The major increases are in the areas indicated. As you will note, the high school needs several important items. I'm happy to report that our football team went to the state finals last year, and we expect to contend for the state championship again this year. In addition to other important items, the budget provides for new uniforms for the team as well as a modern weight facility for all our sports. Our budget must be passed in its entirety here this evening in order to provide these important items and to maintain the excellent quality of our schools. I want to thank each and every one of you for coming out tonight to show your support. Now, are there any questions before the board begins its deliberations?"

The extent to which school budget management has changed in America since 1970 is most evident from the necessity nowadays to demonstrate clearly the reasons for budget increases that might bring about higher taxes. Tighter budget scrutiny is also linked to the lack of faith in American education associated with such events as the publication of *A Nation at Risk* (from Sizer, 1989) and widespread revelations stemming from legal actions brought by students who graduated from high school despite being functionally illiterate. Parents want to know exactly how school funds are being spent, public watchdog groups want to know the results that can be attributed to specific school expenditures and state departments of education want to place certain limits on district spending. The situation is exacerbated further by opposition to budget increases among the growing number of politically active senior citizens who typically live on fixed incomes that are pinched when taxes are increased to generate additional funds for school. Under these circumstances, school administrators find it increasingly difficult to obtain

the funding necessary to operate district programs even at minimal levels. Indeed, the dollars available for education are declining while the cost of providing a quality education is increasing. Consequently, school administrators must find new ways to gain support for their educational programs and for the budgetary allocations necessary to fund them.

Using multimedia technology that is readily available at a reasonable cost, school administrators can develop and implement budget presentations that communicate district financial information to the public in a highly effective manner. The potential power of electronic budget analysis and presentation tools is mind-boggling: Difficult questions can be broken down and analyzed quickly and thoroughly, general ideas and complex supporting information can be explained to a lay audience in one well-planned session and financial data can be presented in a manner similar to televised news broadcasts. To harness such power, however, school administrators not only must learn general multimedia strategies and techniques, but they also must master specific presentation software programs. The bottom line is clearly worth the effort: by using multimedia technology to make school budget presentations, school administrators can enhance their effectiveness as educational leaders.

Max Depree, in *Leadership Is an Art* (1986), describes the first responsibility of the leader as defining reality. Whether by communicating the overall educational vision of the district or by presenting the proposed new budget to the public, multimedia technology probably provides the educational leader with the best tools for defining reality as clearly as possible. Multimedia software packages offer a plethora of ways to share information and impart data. The digital technology of such packages transforms multimedia information into electronic bits and bytes, thereby enabling the designer to create, edit, store, retrieve, distribute, and present items without any generational loss. Users can construct a budget presentation by combining such multimedia elements as text, graphics, color, sound, animation and video. Apple's **QuickTime** permits the multimedia designer to insert full-motion video into any "document" simply by cutting and pasting as with clip art. **Harvard Graphics** permits the school administrator to visibly express (via bullet

sheets, pie charts, ribbon lines, bar charts and symbols) everything from key concepts and symbolic relationships to specific categories of expenses such as personnel, operating costs and fixed costs. **Lotus 1-2-3** can contribute not only to the development of management information databases, but also to the communications function by providing spread sheets that can be prepared beforehand as features of a planned budget presentation. Once the final product is complete, the viewers of multimedia presentations may be either passive or active. Given both the power of the software and its potential impact on school financial leadership, every educational leader should prepare to meet the challenges of the information age by acquiring new communication and presentation skills.

Increasingly, multimedia capabilities gain significance as site-based management and other reforms blur the lines between overall curricular and staffing goals and budgetary decisions. While the site-based budgeting process is built around the site-specific input of collaborative management teams, the basic rationale for all budget decisions is still drawn from overall district goals. Accountability is a crucial component of site-based budgeting. Its importance reflects the fundamental need for site-based budgeting to include realistic goals and measurable objectives over vague and irresponsible promises. But this manner of accountability cannot exist without rather sophisticated analytical methods; and most of the financial and statistical analyses that must be carried out during the budget development process would be impossible without using modern information technology, which allows the user to engage in a higher order of thinking. To apply information technology most effectively, however, the school administrator must be adept enough with the tools to integrate the technology into a financial planning process driven by overall district goals. The requisite new level of analytical sophistication is indicative of the degree to which the changing information landscape has specifically affected school budget administration and, more generally, affected educational administration. Technology has become a necessary component of management for modern organizations – and school management is no exception. Most recent discussions of successful managerial practices emphasize the "absolute necessity" of using computer skills to improve performance

and increase efficiency. In fact, educational administrators at all levels must become adept at using technology as extensions of their conceptual arsenals. If a school administrator's competencies extend to mastery of the latest multimedia software packages, then he or she is capable of leveraging technology to communicate with constituents in a manner that moves beyond the previously limited horizon of budgetary management into the exciting arena of district financial leadership.

Applications of computer technology in the form of multimedia presentation tools, if utilized to full advantage, may soon become the school administrator's most effective tools-of-the-trade. Along with the exciting new dimensions added to desktop computers by digital video technology, *multimedia* has taken on an entirely new meaning: Multimedia now refers to computer applications that depend upon software packages to produce a finished communications product. The multimedia presentation is simply a way of using technology to present information. In a larger sense, however, it is a communications tool with great potential for selling your message in a modern context – enhanced by the integration of different media and the utilization of special effects. A key feature is the ability to engage viewers either passively or interactively. In fact, multimedia interactivity, when used properly, can be one of the most powerful applications of the technology. By granting the viewer the power to achieve individually selected and on-the-spot access to certain information through instantaneous retrieval of items stored in a database, interactivity in a presentation can extend the communications process beyond the passive stage to an active stage in which the audience actually determines the content of the presentation. Furthermore, by applying multimedia technology similar to that used for ATMs, school administrators can create interactive kiosks and place them at convenient locations within their districts, where the public can access whatever information the district decides to make available – budgets, proposed tax rates, state funding formulas, school election information and the like.

Given the new importance to district strategic planning of multimedia software for such applications as decision mapping and statistical analysis, the multimedia incentive has become impossible to overlook. In fact, special multimedia features – made possible by combining such

comprehensive software packages as **Harvard Graphics**, **Lotus 1-2-3**, **PowerPoint**, **Snap Graphics**, **QuickTime** and **Astound** – can elevate standard administrative analyses and regular business office or board presentations to a level equal to network television news. While the main emphasis here is on ways in which multimedia technology can help school administrators – especially business officials – communicate with district constituents regarding the budget, the point cannot be made too often that the information age requires all educational leaders to embrace a more sophisticated approach to educational planning and a new level of management communications.

By learning multimedia techniques and exploiting the technology, superintendents can meet district-wide requirements of the new communications imperative and school business administrators can strengthen their role as the financial brains of the district management team. As the end of the millennium draws near, technology promises to become an even greater agent of change than in recent years – especially in the area of school business management. While this situation will result in many noteworthy technological challenges for superintendents and business administrators, the multimedia incentive clearly tops the list of those challenges. Without a high level of competency using the new multimedia software packages, the modern educational leader will be forced to work with less than the optimum in conceptual and communications capabilities. Even though for some people the attainment of new technological competencies might be viewed simply as learning to use some fancy new tools, the pervasive impact of technology has endowed this process with an urgency affecting virtually every aspect of the school administrator's personal and professional life. Indeed, in a very real sense, technology has become the new language of management, and educational leadership is no exception to the rule. The school administrator must learn to speak the new language or risk surrendering leadership to those who can exploit technology more effectively. Under the circumstances, the meaning of the multimedia incentive should be perfectly clear.

Chapter 2

MULTIMEDIA FUNDAMENTALS

Clarifying the specific contextual meaning of *multimedia* is necessary nowadays because the term has been interpreted so differently by the diverse users of various communications technologies. One meaning simply refers to the use of multiple presentation media: An educational leader is making a multimedia presentation when she simultaneously displays transparencies using an overhead projector on one screen and presents slides on another screen. But computer technology has given rise to an entirely new meaning of multimedia. William Coggshall, president of New Media Research, Inc., says: "[I]f it moves or makes noise, we'll consider it a multimedia presentation[;] and if it doesn't, we'll call it a traditional presentation." For school administrators, multimedia should be looked upon as a process permitting interaction between information and technology. Therefore, the relevant meaning of multimedia is not really concerned with technology, but rather with effective communications. In the purest technical sense, however, this definition of multimedia also refers to the merging – through the creation of various combinations generated by computer software – of such technical components as graphics, color, text, sound (as music or narration), animation and video.

The technical components certainly can enhance every one of the different multimedia presentation styles, but still the most powerful style is interactive. Generally, multimedia interactivity is grouped loosely into linear and non-linear categories: An ATM machine depends upon a simple form of guided interactivity that takes an individual through a linear process ("click" to advance), while some of the most advanced video games rely upon "free form" non-linear interactivity as the key to structuring an event that does not occur without human intervention.

Advanced educational and training applications of multimedia interactivity typically break up a highly-structured presentation into bite-sized chunks of information that participants can access through a non-linear interactive process. Comprehension of each segment can be tested as a prerequisite to moving on to the next appropriate chunk of information. But while the average school administrator should know that advanced levels of non-linear interactivity can be attained, the typical multimedia school budget presentation should include no more than a modest level of such interactivity.

As might be expected, the primary benefit of multimedia applications is the communicative power generated in a presentation by the combination of several traditional media. Multimedia makes the spoken word even more accessible. Music or other sound imparts mood and character. Graphics offer the possibility of visualizing a message in an appropriate style. Video captures the movement of the real world. Multimedia text provides not only clarity, but also the option of self-paced reading. By utilizing various combinations of these formidable multimedia communication vehicles, the presenter can become more effective, audience learning can take place more readily, group consensus can be reached more easily and complex ideas can be explained more clearly and completely.

Most of the additional benefits of multimedia applications stem from the digital capacity associated with most related media. Because digital information suffers no generational loss when replicated or transmitted (and back-up copies can be made quite easily), manipulation and editing can be performed without altering the original. Whether the designer is working on a presentation or another project, the effects on the production process are astounding. Using software alone, powerful manipulations and dramatic editorial tasks can be performed on digitalized material, repetitious production tasks can be automated and massive amounts of material can be stored on CD-ROMs with a simple mouse click or two. Digitalized material also can be accessed randomly rather than directly and tediously as when searching through such linear items as a book or even a videotape. In fact, when digitalized material is properly indexed or linked, random access permits the user to jump almost instantly from one point in the material to another. For example, a digi-

talized video stored on hard disk can be accessed almost instantaneously at a particular moment in the program. Whereas these production benefits once required very expensive equipment, the hardware and software needed today is within the financial reach of most LEAs (local educational agencies) or other educational entities.

When equipping the school administrator with the hardware and software required to produce top-notch budget presentations, some basic specifications should be kept in mind. One of the most important attributes of the multimedia designer's computer is considerable storage space. A great deal of space is required for such desirable features as intensive graphics and digital sounds. Consequently, specifications for basic hardware selections must begin with at least a Pentium processor. The minimal computer speed should be 133mhz to 200mhz; a 12X speed CD-ROM drive will accelerate the rate at which information can be retrieved from CDs; a 18X or 24X CD-ROM drive will increase the time before an inevitable update is necessary. (Author's note: Since Moore's Axiom is at work with technology, namely that "The storage and speed capability of computer hardware doubles every 18 months", we realize that today's leading edge computer is tomorrow's dinosaur. Therefore, the computer configurations discussed here WILL change quickly. However, you need to purchase now to gain the experience and expertise for tomorrow.) The computer should feature no less than 32-64 megabytes of RAM and 2.1- 4.0 gigabytes of storage. A modem should be included (at least 28,800 to 56,600 bps). Add in several CDs with bitmaps (for pictures) and waves (for sounds). A projection unit or videoshow device also should be included (although these can vary greatly in price and quality). Finally, a laserjet printer should be part of the hardware package as well as some "sneaker-net" storage devices like a portable "Zip" or "Jazz" drive. The entire hardware configuration (w/o projection devices) should cost no more than $2,000 unless an LED screen and video camera also are purchased. In terms of software, **Harvard Graphics 4.0** or **Powerpoint 4.0 to 8.0** (or most current presentation packages), alone, are adequate to get started; but the school administrator who is responding vigorously to the multimedia incentive also will need to acquire software products like **Astound 4.0**, **ActiveOffice 1.0**, **Deltagraph 4.0**, **Flowcharter 4.0 or 7.0** (with

SnapGraphics), **iPublish**, **Mapinfo**, **Microsoft Publisher** and **SPSS** – all for around $1,000 (with appropriate educational discounts and educational versions). The total hardware and software configuration will equip the school administrator with everything he or she needs to bring any multimedia budget presentation to life. However, if additional funds are available, the administrator's multimedia presentation capabilities can be enhanced considerably by purchasing an LCD (liquid crystal display) color panel or projector (price: $1,500 to $10,000) for projecting whatever is displayed on the computer screen as images. In the final analysis, each administrator should develop over time the particular complement of hardware most compatible with anticipated district communication needs.

Because the separate components of a multimedia production must be understood before the hardware and software can be used to best advantage, school administrators (and novice multimedia designers) should become familiar with each of the following media elements: text and graphics, color, sound, animation and video. And, of course, some knowledge should also be gained about interactivity. Even though multimedia technology can integrate all of these components within one presentation, not all of them need be included for the production to qualify as multimedia. Ultimately, however, any distinction between groupings of multimedia components is unimportant; and some commentators even suggest that the term "multimedia" is meaningless. But the immediate goal here should be to promote a basic understanding of some fundamental technical concepts related to the synergy of digitalized media, not to consider the intrinsic merits of the terminology.

The school administrator can develop visuals for a budget presentation by using the computer's multimedia authoring capabilities to generate text and graphics that will help communicate key points. Obviously, the text and graphics will appear to the viewer as static images – or visuals. Realistic pictures can be produced by using software programs that have the capacity to generate three-dimensional drawings. Once administrators (and novice multimedia designers) have gained the ability to create well-designed visuals on the computer, they are then ready to incorporate the other multimedia components in developing budget presentations.

The computer offers the multimedia designer almost 17 million different colors. This fact renders obsolete the old maxim that presentation visuals should be limited to three or four colors. The wide assortment of colors should come into play when developing photo-realistic color images. These images (classified as continuous-tone color images) will give the screen a real-world look. In addition, the designer has the option of incorporating full-color clip art or using a color scanner to digitize (and place within the computer files) full-color pictures that later can be inserted when and where they are needed. Clearly, such multimedia color techniques violate the old three- or four-color rule, but by providing the ability to produce full-color, realistic presentations, they obviously represent an improvement over the limited-color, artificial images of earlier methods.

Sound should be incorporated within a multimedia budget presentation only when the purpose is clear. Typically, sound will strengthen a presentation when used to include narration, voice-overs, sound effects or music that accompanies an animated sequence or signals a transition. Many computers (including all Macintosh models) can handle sound without any problem; and sound capabilities can be added to most other computer models at minimal cost. The actual sound bites incorporated within a presentation are drawn either from pre-recorded materials or from recordings (including synthesized sounds) made specifically for the project. Appropriate sound materials can be taken from several kinds of disks (off-the-shelf, CD-ROM, laser optical), or digital sound can be produced using audio equipment or microphones along with a recorder and digitizer. Digital sound can be edited, altered and copied without any loss of quality; and this sound can be played by using the computer. Computer-generated sound normally plays back with medium fidelity; but high-fidelity digital play-back sound can be attained with a co-processor card. Whatever the fidelity, including sound in a budget presentation requires that due consideration be given to the speakers that will be used to project the sound throughout the facility.

Multimedia animation actually involves the creation of movies on the computer – at levels of sophistication and realism that may vary widely. The most likely applications for a school budget presentation include "animating" transitions between visuals (slides), zooming in titles, dis-

solving one visual into another and adding items to a bullet chart in a "build series." But these applications only touch upon the possibilities of animation in the multimedia world. In the traditional sense, animation refers to a range of techniques for making hundreds of drawings which, when projected sequentially on a screen at a constant speed, will produce the illusion of movement. However, multimedia animation depends upon the computer to carry out a similar composition process dictated by software. For example, a dollar bill representing property tax contributions can be made to fly like a bird into a financial visual by creating and arranging a sequence of only four different images, using an "in-between" command to smooth out the movement, and cutting and pasting the sequence several times until the dollar bill flutters across the screen to the desired spot. Viewers will be unaware that the designer used only four different images to create the illusion of flight. Due to multimedia animation's wide range – extending from simple caricatures (even "stick figures") to intricately-detailed professional-grade images – the applications will serve the gamut of presentation needs. The results can range from amateurish to professional, but the designer's firm control over animation may make it more effective than video for many purposes.

The school administrator can use multimedia video techniques to create desktop video sequences without employing a camera crew or a professional studio. A camcorder or videocassette recorder can be used to record footage of scenes from real life or from a television program or videotape; the footage can be edited into a video clip for program development via multimedia software. The video techniques permit the designer to focus attention on a sequence of images to present complex information from a variety of sources in a quick and simple way. Sometimes the designer may want to use only a single frame or two from a video clip: A video digitizer facilitates the extraction of one or more frames from a video source and a frame grabber accomplishes the same feat for a sequence of video images. Once the designer has developed the video components on the computer, videotapes can be produced using a video card to output digital signals onto the tape and inserted at the proper interval within the budget presentation. However, one serious limitation of recording to a videotape is that the viewer can-

not respond interactively unless the presenter stops the multimedia program to allow discussion.

Multimedia interactivity depends upon branching (a type of artificial intelligence), which permits viewers to interact with and navigate their way through a presentation by making selections from among menu choices or dialog boxes. If an audience is relatively well-versed at least about some portions of the subject matter, the designer might consider including some options for free-form exploration bordering on the ultimate in viewer interaction and control. More than likely, however, the school administrator will generate greater support by presenting factual information about the school budget through an interactive budget kiosk broken down into several different sections that viewers can browse through in a non-structured manner dictated almost entirely by their individual interests. A touchscreen is probably the most practical control device for use with a budget kiosk, even though the mouse is the standard method used in mass-distributed software items. Voice-activated control systems are currently being perfected. Regardless of the specific applications or configurations, however, multimedia interactivity can be one of the most powerful and intriguing components of a presentation.

The essential tools of the multimedia designer's trade are known as authoring software. With features similar to those of desktop publishing programs, multimedia authoring software enables the user to design, edit, arrange and synchronize different media components from different sources. The earliest authoring packages were little more than slide-making and chart-building tools that adopted the slideshow metaphor and retained it even as new media components were being added to the mix. The slideshow may not be the best model for current multimedia presentation software, but the analogy does offer a certain level of comfort and familiarity. On the other hand, the products now available have progressed to the point where even the most basic packages feature the capacity to integrate media, control motion and produce interactivity. Because the authoring software will determine the designer's creative parameters more than any other item, the school administrator should know something about the three basic functional ranges of available packages:

1. Multimedia-capable presentation software: Harvard

Graphics, **PowerPoint** and **Gold Disk Astound** typically feature such general purpose multimedia screenshow and slide making capabilities as graphing, charting, illustrating and integrating; Astound offers more options for producing interactive presentations.

2. Dedicated media-integration software: IBM Storyboard, **MultiMedia Works** and **MediaBlitz!** can import a wide variety of formats (sound, video, graphics and animation), cannot create media elements and generally do not offer the powerful graphics and output features found in multimedia-capable programs.

3. Professional development software: Macromedia Director, **Authorware**, **Multimedia ToolBook**, **Apple HyperCard** and **Apple Media Kit** are costly tools used by accomplished multimedia authors to produce professional-grade presentations; they feature such advanced capabilities as built-in programming, response judging and data collecting.

The single most important measure by which the school administrator should judge authoring software is its compatibility with his or her style of thinking and working. For example, the administrator who regularly organizes his ideas in outline form should select software that includes an outlining feature. Most multimedia packages allow the author to type an outline directly into a presentation under development or import an outline from a word processing program. Other features to consider include:

■ **Sorting & Arranging:** Slides and other items can be sorted and arranged in several ways, but the best known is the "thumbnail slide sorter view." Slide sorters display each of the author's images as small sketches. By clicking and dragging the thumbnails, the author can arrange them in whatever order is desired or eliminate one or more of them altogether. Slide sorters are available in all general purpose packages and in almost all media-integration packages.

■ **Templates & Master Slides:** Presentations should have a cohesive appearance; layout, text style, and color scheme should be consistent throughout; and the conceptual elements should connect thematically. Template families should be previewed. The best software packages facilitate both the design of a master slide and the selection of a pre-

designed template.

■ **Output Options:** If the school administrator expects to incorporate slides, transparencies or color printouts in the budget presentation, he or she should secure one of the numerous packages that offer such specific output options. **Astound**, in particular, contains all the necessary output functions as well as options for electronic transmission of slides to a slide preparation service entity.

■ **Animation:** Slide transitions and animated bullets have been part of the best multimedia slideshow presentations for many years. Only recently, however, has the eye-catching motion produced by those items become standard fare in good multimedia presentations. Today, most packages offer a function like "screen build" or other options that let the user add elements to successive slides or animate charts or graphs during the development process. Indeed, most packages make it possible to play back animation files created outside the program, and the newest ones have gone a step further by allowing the author to create animations within the programs themselves. Action, for example, lets the user create standard screen builds, animate charts automatically and make objects move on cue along a predetermined path.

■ **Timing & Sequencing:** For dynamic media elements, the order of events within a slide/scene can be as important to the presentation as the order of the items themselves. The newest multimedia presentation programs – **Astound**, **Action** and **Q/Media** – offer time lines for synchronizing individual items. Both the duration of the object's appearance on screen and its actions can be adjusted in relation to the total duration of the slide/scene.

■ **Painting & Drawing:** Generally, these capabilities are desirable if the author plans to carry out most of the graphics work within the program. Persuasion and a few other packages have incorporated tools suitable for a graphics professional. **PowerPoint** has an additional "screen draw" feature that permits the author to draw images on the screen during a live presentation.

■ **Charting & Graphing:** Powerful charting and graphing tools have all but ended the days of hand-drawn items. **Harvard Graphics**, **Stanford Graphics** and **DeltaGraph Pro** – are packages known for their charting functions. **PowerPoint**, **Freelance**, **Charisma** and many

others include built-in charting functions capable of serving the most demanding presentation authors. Animated graphs are becoming the de facto standard amongst accomplished multimedia presenters. **Astound** features automatic graph animation.

■ **File Formatting:** Multimedia technology has opened a Pandora's box of file types and options that software developers are just beginning to bring under control. Dozens of file formats are being used, and each media type has at least one standard file format, and the standard will differ between a PC and a Mac. Obviously, the designer cannot assume that a file created on one platform can be read automatically by another. A certain degree of standardization has resulted, however, from the need to interchange files between different software tools. Because standardization has gained the support of major software developers, the author can integrate files more simply now than was possible just a few years ago.

■ **Interactivity:** By its very nature, the multimedia presentation suggests interactivity. The power of multimedia technology as a communications tool depends upon the ability to import or link to other media and other applications – and to control those linkages during both the authoring process and the presentation. The most basic form of interactive control is pacing – where the presenter reacts to the audience by speeding up, slowing down or pausing the presentation. Every program on the market allows the presenter to advance the presentation manually or set time intervals for automatic pacing. But linking of media files, another form of interactivity, generates more dynamism in a presentation and affords the interactive viewer with greater depths of information. When authoring a presentation, the school administrator can decide between the options of having media information appear automatically when a slide is displayed or of manually initiating the media event while the slide is on the screen. For example, the author might choose to display an animated segment only if the audience seems to be interested in the information it contains. Rudimentary control of media events can be provided either by standard controllers coming with the computer's software or by the start, stop, forward, and reverse controls of the presentation software. **Harvard Graphics**, **Freelance** and **WordPerfect Presentations** allow the author to create special hot but-

tons and to set up the links needed for jumps and branches – making it possible to produce basic branching interactivity. **Compel** lets the multimedia designer define any word or object on the screen as a hot button and assign it an action such as playing an audio file, pausing for a user-triggered event or leaping to another part of the presentation.

■ **Object Linking & Embedding (OLE):** Most currently available programs can support Object Linking and Embedding (OLE) – pronounced "oh-LAY." By linking or embedding data and media elements created at different times and residing in different applications, OLE has shifted the nature of presentation authoring from an application-driven activity (with everything happening in one fixed program environment) to an event-centered process focusing on the presentation as a "living document" that is connected with other applications. This breakthrough should not be underestimated: Presentations have been transformed from one-of-a-kind slideshows, which often grew stale quickly, to dynamic, constantly-changing communications events. OLE makes possible the embedding or linking of media components – text, video, graphics, sound, video and animation – within the fabric of the presentation. Actually, embedded objects are copies that reside in the presentation authoring software separate from the application in which they were created. They maintain a connection to the original application, but not to the original data file. Consequently, changes in the original object will not be reflected in the presentation unless a new copy is made and embedded. Linked objects, by contrast, are representations of the original object; and because they reside outside of the authoring application, they can be shared by other applications or presentations. Linking makes it possible to use the original media object in numerous presentations – all of which will be updated as the original is revised.

Considering both the power of the technology and the importance of school financial matters, every school administrator charged with developing a budget should be capable of implementing new communication and presentation strategies. Especially noteworthy – as perhaps the most effective new multimedia tools for both communication and planning – are **Harvard Graphics** "screen shows" allowing the school administrator to visibly express (via bullet sheets, pie charts, ribbon lines, bar

charts and symbols) everything from key concepts and symbolic relationships to quick messages and broad trends to specific categories of expenses such as personnel costs, operating costs and fixed costs. **Lotus 1-2-3** can contribute not only to the process of developing district management information databases, but also to the communications function by providing spreadsheets that can be prepared beforehand as features of a planned budget presentation, or – by drawing upon the database and applying appropriate formulas – as on-the-spot components of a budget-planning session.

Paradoxically, the new technological sophistication makes the job of preparing a school budget presentation both easier and harder at the same time. The job is easier because some technical hurdles have been overcome, but the job is harder because the demands on the person responsible for presenting the budget are greater. As noted earlier, the evolving features of the information landscape have affected the role of the educational leader by creating a situation wherein communications requirements and financial leadership are linked via technology as key components of the school business-management process; computer technology and presentation skills provide the means (through leverage) that permit the school administrator to affect the financial operation of schools in appropriate new ways.

Toward that end, the following observations may be helpful to school administrators as they begin applying multimedia techniques in preparation for their next budget presentations:

■ **Get Addicted:** Once the school administrator begins using multimedia techniques, the potentialities will become more and more obvious, and he or she will never switch back to the old applications. Multimedia not only is relatively easy to use (at the typical budget-presentation level), but also absorbs the user in the creative process. The typical educational leader will become addicted.

■ **Begin at the Top:** Jump right in at the production stage; have no fear. Multimedia production is merely the blending of more than one medium for presenting information; the administrator who has used the "on-line help" option available in most Windows packages has probably already been producing multimedia text; learn by doing.

■ **Exploit Multimedia's Effectiveness:** Because multimedia takes

advantage of several media, multimedia budget presentations will promote greater audience attention and induce more effective understanding of district financial goals. Keep in mind that multimedia permits the school administrator to go a long way toward exercising the leadership required to define financial reality for the district.

■ **Take Note of Multimedia Caveats:** Even though the creation of basic multimedia budget presentations is relatively easy, considerable practice and even some training may be necessary to succeed with complex applications. One of the first steps is to purchase a computer already outfitted for multimedia so you may avoid the pitfalls of installing a conglomeration of hardware and software and then trying to make it all work. Get good advice about hardware and software before making the first purchase, but expect to upgrade or replace the equipment every year or two in order to stay on the cutting edge. Above all else, do not let these caveats delay immediate action.

Chapter 3

APPLYING MULTIMEDIA TECHNIQUES TO THE SCHOOL BUDGET PROCESS

The combination of spiraling costs for education and sharper concerns about student performance has focused greater attention on the school budget process. Under the circumstances, effective district budgeting has become one of the essential requirements for achieving educational excellence, and the nature of the budget process has changed significantly. Nowadays, the multimedia school budget presentation should culminate a process in which the administrator applies multimedia techniques to facilitate the district's financial planning and budgetary development procedures. As a result, educational leaders must carry out a more sophisticated budgetary planning process. Indeed, Robert Finney, in *Powerful Budgeting* (1993), says that effective budgeting depends upon the application of a "deliberate technique, at every level and at every step, that will promote excellent performance and push the participants to strive for the best results realistically possible."

As a strategy for organizing the task of budget analysis, the school administrator should carry out the entire analytical process with the components of the forthcoming budget presentation clearly in mind. Those com-

ponents might include all of the following: the district's educational vision and mission; specific goals and objectives; problem definition and analysis; drivers and balancers; phases and cycles; frequencies, tolerances, and forces; specific budget components; and conclusions and recommendations. If the district administrative team approaches the budget process from an ecological perspective, the educational mission will be seen as an expression of the larger community's commitment to allocate – as cost-effectively as possible – an appropriate share of its resources for education with the expectation of reaping measurable and worthwhile returns on the investment. And from an ecological perspective, the best justification for the school budget may be its role in preserving or improving the social environment – to say nothing of the natural environment – through the power of education.

While the district's educational vision and mission will determine the broad parameters of budgetary planning, specific related goals and objectives must guide those who will make the hard choices regarding the allocation of funds for such specific budget components as capital expenditures, salaries, and operating costs. For this process to be carried out in the optimal fashion, the district management team must employ the sophisticated techniques made possible by the application of systems theory and modern technology. By applying multimedia techniques while also recognizing the proper relationship between analysis and community values, the school administrator can take budgetary analysis and decision-making beyond mere quantification to a level in keeping with the latest ecological models of organizational and operational efficiency. For this to be possible, however, the school administrator first must possess all of the following:

(1) Broad knowledge not only of budgetary goals but also of general techniques for budgetary planning

(2) Expert knowledge of general budgetary analysis strategies and of statistical measures of demographic data – especially those most applicable to computer-generated enrollment projections

(3) Specific knowledge of relevant resource allocation formulas

(4) Skill in using the basic software packages required to plan, prepare and present a school budget analysis – Harvard Graphics, Lotus 1-2-3, Snap Graphics and Astound

Because the budget is a forecast of the district's financial status, consideration of the likely impact of all relevant matters is necessary to develop the financial aspects of district educational plans. Teachers' salaries, fuel costs, state and federal aid, political realities – all of these factors and numerous others must be considered. Enrollment figures should be projected and their likely impact analyzed. Proposed budget allocations for the following year should be displayed in an appropriate spreadsheet format with comparative data provided for the previous year and the current year. Both the complexity and the simplicity of some of the budget's cyclical trends should be examined by using graphs to present longitudinal data for a period of several years. A highly relevant application of multimedia techniques includes displaying the range of future scenarios that can be derived from an analysis of current district organizational assumptions (often with supporting data presented via graphical representations). However, before trying to use multimedia techniques to clarify the limiting assumptions – or invisible fences – that might delimit the budget process, those barriers should be identified as clearly as possible.

The school administrator should adopt a well-defined analytical strategy. "Analysis and measurement," say Hughes and Richards (1995), "are now seen as not just indicators of historical performance but as tools [that] an effective leader can use to shape policy, and monitor progression toward desired goals." With those words in mind, the school administrator should be prepared to employ benchmarking and similar multimedia analytical tools of the 1990s to transform relevant data into technologically enhanced budgetary realities. An integral feature of the benchmarking process is the identification of the balancing forces (balancers) and driving forces (drivers) that, along with limiting assumptions (invisible fences), determine the parameters for district performance. As forces to examine during the analytical process, drivers and balancers are answers to the question: "Why?" Drivers and balancers normally should be considered in the district budget process from the formative stages to the end-of-year close-out. These forces might be categorized along with invisible fences as falling within one or another of the following three classifications: inherent to the environment (and probably not subject to alteration by the district management team), structural (and, therefore, embedded within the district's current organizational design, location or history), or performance-related (and, thus, identifiable

and probably measurable as an outcome of a particular activity).

Multimedia techniques offer school administrators a variety of powerful computer-driven tools for processing large amounts of data and analyzing multiple budget scenarios. But such computer-driven tools should be applied in concert with the conceptual tools necessary to carry out a technologically enhanced process of budgetary analysis. According to Hughes and Richards (1995), the final school budget should emerge as the result of analyses which employ a combination of conceptual tools: benchmarks (goals, indicators and evaluative criteria); phases (stages and trends); frequencies (data totals and measures of central tendency); components (major analytical categories such as "descriptors"); and tolerances and forces. Multimedia applications can upgrade the administrator's ability not only to use these hard and soft analytical tools to examine the relevant data in the most effective manner, but also to engage in the "technologically enhanced" conceptual activities required to succeed as a strategic planner.

In keeping with an ecological perspective and related conceptual purposes, the components of the budgetary analysis process can be organized into three basic types: Type I – object focused; Type II – district focused; and Type III – community focused (or ecological). Type I components are defined as those measures related to compliance with internal and external requirements. Much of any budget analysis focuses on these items, and key factors always include drivers and balancers as well as historical data on related budget allocations. Type II items normally are related to the LEA's performance with respect to specific goals and objectives. They are analyzed comparatively with the focus clearly on performance (especially current performance relative to past performance) and to cost-effectiveness. They are spoken of in terms of goals and benchmarks, stages and phases, and tallies and frequencies. Type III components are derived from a view of school districts as ecological communities whose stakeholders are active participants in the LEA's affairs, not passive recipients of services. They are analyzed with the focus on structure and environment, on tolerances and forces, on thresholds and breakpoints, and on the interdependence of the district's various institutions and constituencies.

Presented below by type are examples of some typical analytical and informational objectives of a site-based district budget development team:

Type I - Object Focused

- **Examine** the entire budget to determine the levels of past allocations
- **Determine** ratios deemed important from an ecological perspective (e.g., student/teacher, per pupil expenditures)
- **Analyze** the impact of drivers and balancers
- **Recommend** budgetary allocations resulting in a balance of revenues and expenditures

Type II - District Focused

- **Measure** current student performance relative to past performance (e.g., current reading levels or SAT scores compared to those from three years ago)
- **Establish** performance levels that students must reach in order to meet district goals
- **Present** the results of all other comparisons of student progress and explain any variances
- **Recommend** any budgetary adjustments required to accomplish related objectives

Type III - Community Focused (Ecological)

- **Determine** any budgetary implications of the local community's structure and environment, tolerances and forces, thresholds and breakpoints
- **Examine** the demographic characteristics of community/school volunteer groups and partnerships
- **Determine** the financial impact (e.g., savings in personnel costs, in-kind or actual contributions) of community/school volunteer groups and partnerships
- **Present** the accomplishments of community/school volunteer groups and partnerships
- **Clarify** the role to be played by community/school volunteer groups and partnerships in meeting district goals
- **Recommend** any budgetary adjustments required to accomplish related objectives

Each step in the budget analysis process should be completed in accordance with a budget mission statement that parallels the district's overall educational vision for the community. As a double-edged tactic for promoting effective communication within the budget development team and anticipating later applications in the budget presentation, the school administrator should present the mission statement through bullet charts that focus concisely on the main ideas, avoid information overload and use a font which is both large and easy to read. For both the budget analysis and the budget presentation, a comparison of major budget components might be made using pie charts to show differences or changes expressed in dollars and percentages. As the first step pursuant to the budget mission statement, however, the district's needs should be determined in part by analyzing the relevant data in terms of cycles, forces and tolerances.

Analysis of cycles is an important technique for gaining broader perspective, clearer insight, and sharper awareness of district concerns. As a general tactic, this technique can be used to reveal trends over time and to make projections for the future. Autobuild (a **Harvard Graphics** "tool") can be employed very effectively in the process because it makes possible the construction of comparative graphs to highlight sharp comparisons. Longitudinal analyses can be conducted to establish rankings over time that reveal the relative position of the district in comparison with other districts. When communicating the results, the administrator should keep in mind that longitudinal analyses often can be presented best by using line graphs to show correlations for several variables, and bar graphs to reflect the relative changes in variables. In general, the preparation of graphs not only enhances communications among those involved in the analytical process, but also offers the school administrator the most effective tools for presenting statistical information to an audience in a manner which facilitates clear understanding of the relevant points.

Often the forces that affect the performance of our schools are beyond the control of educational leaders, but still they must be taken into account during the budget-development process and other planning activities. Analysis of such forces is relevant, especially, to the formulation of long-range plans and to the determination of specific targets for accomplishment in the future. Such forces are represented frequently by two variables: "drivers" and "balancers." According to Hughes and Richards (1995), the iden-

tification of these forces normally is a key step not only in explaining current conditions within a district, but also in determining specific aspects of the LEA's model for change. This type of analysis should be conducted with a view toward communicating the results most effectively using graphs and vertical arrows in conjunction with numerical values or simple labels. The impact of drivers and balancers can be evaluated further, within particular budget categories (personnel, operations and fixed expenses), by constructing breakout charts using two connected pie charts or one pie chart connected by a column. A **Snap Graphics** diagram might be employed not only during the budget-planning process to organize information about the impact of drivers and balancers, but also during the budget presentation to portray and to explain their impact on the planning process.

The analysis of tolerances is geared toward the determination of limits for decision-making or goal-setting. A useful general definition of "tolerance" might explain it simply as the difference between a desired goal value and the expected result if the status quo is maintained. As a proactive research technique, tolerance analysis involves the analysis and expression of an identified area of concern in terms of units. For example, the school administrator may want to ascertain the maximum and minimum student/teacher ratios, the projected range of teacher and students absences, the limits of specific budgetary allocations for computer software or other items, or the probable level at which student failure becomes unacceptable. Once the gap between maximum and minimum has been determined, the analyst can establish the "range of reasonableness" for decision-making. While the determination of tolerance dimensions is underway, the school administrator should plan to employ multimedia graphs to give those dimensions visual form and to clarify their significance to the overall process of problem solving, performance improvement and strategic planning.

By adapting Robert Finney's five-step process of "Gap Analysis" to education in the form of tolerance analysis, the school administrator can perfect the multimedia techniques needed to transform the school budget process into a visionary undertaking whose purpose is to promote maximum district performance by defining possible parameters, setting ambitious goals within those parameters and recommending specific actions to meet those goals. As an educational planning tool, tolerance analysis goes beyond mere statis-

BEST COPY AVAILABLE

tical calculation to include the determination of district needs, in large part through comparison of current district conditions with desired outcomes. As a general principle, the application of tolerance analysis should be limited to the district's most important concerns and problems – or the process may lead to a lack of focus on attainable goals. Perhaps the most important potential benefit of tolerance analysis is the creation of a common district-wide – or even community-wide – language for communicating about important concerns during the school budget process; misunderstandings can be avoided and consensus can be reached if everyone is discussing problems and evaluating proposals in terms of specific goals, precise tolerance dimensions, status quo expectations and related gaps. Presented below are broad guidelines relevant to each step in the process.

Step I: Tolerance analysis begins with the determination of district parameters or "dimensions" in accordance with one major requirement: Each tolerance dimension must be something that the district management team can change or control directly through its actions. At the top of the scale, tolerance dimensions may include the likelihood of passing a referendum or of adopting a higher tax rate; but lower-level dimensions typically will include such important measures of particular educational functions as dropout rates, detention rates, and fourth grade test scores.

Step II: Once each tolerance dimension has been determined, the next step is to select the budget-year goal for each one. A key consideration during the budget process must be the establishment of specific and ambitious goals that can be accomplished by the particular educational unit with the resources provided and under existing or new policies and procedures. For example, if one tolerance dimension is the construction of additional classrooms at a particular school to meet the need produced by enrollment increases, the analyst must be certain that the goal – or specific steps in that direction – can be met during the budget year.

Step III: After determining the dimensions and goals, the next step involves the definition of expected status quo results for each tolerance dimension during the budget year. In other words, the school administrator should determine what will happen if current circumstances remain unchanged, if no action is implemented. With regard to the construction of additional classrooms, the existing (status quo) number of rooms clearly might be unacceptable; but the key budget question then becomes the mini-

mum number of new rooms that is acceptable.

Step IV: The penultimate step in tolerance analysis is the recommendation of specific action for each tolerance dimension to close the gap between the desired goal and the status quo result through the implementation of attainable and measurable efforts. The recommendation of appropriate action should be highly likely due to the specificity and focus provided by tolerance analysis.

Step V: The final step is the calculation and insertion in the budget of the financial allocations required to carry out the recommendations for specific actions. If the tolerance analysis has been conducted properly, this fifth step will be somewhat mechanical and perfunctory.

Through expert application of technologically enhanced conceptual abilities during the multimedia analytical process, the school administrator should be able to take the lead in formulating a district budget which will promote accomplishment of the community's educational vision. In a practical or mechanical sense, the school budget might best be described as the financial side of a blueprint for closing the gaps highlighted during the process of tolerance analysis. But in a larger ecological sense, the budget should be looked upon as an important step toward realization of the district's vision for the overall development of students through the allocation of resources for district personnel, educational programs, and equipment and supplies. Moreover, in keeping with both the multimedia incentive and the ecological perspective, the budget's components should match not only the key points that will be emphasized during the school budget presentation, but also the presentation's basic multimedia strategy. For example, the budget's recommendations regarding allocations for important expenditures (textbooks, computers and testing materials) should be presented along with graphical representations depicting the range of relevant tolerances for such allocations. Important ecological factors affecting the budget might be depicted as arrows pointing inward toward a widely-recognized symbol of the district. Drivers and balancers might be depicted as animated dollar figures or percentages.

As a final practical consideration, the school administrator may want to include the evaluation process as another step in the development of the budget. In the design and implementation of the evaluation model, statisti-

cal information must have a place and multimedia techniques must be utilized. But the school administrator should take care so as not to rely solely on such sources of information. Educational leaders who depend too much on technology may look askance at information that is not computer-generated or that cannot be presented through multimedia techniques. Indeed, the application of multimedia techniques to the school-budget process should not preclude the use of other techniques for gathering and evaluating information. The school administrator should use his or her "technologically enhanced" conceptual and communications abilities simply to serve more effectively in a role which most certainly requires such human qualities as wisdom and integrity and which focuses above all else on the human needs of the students.

Chapter 4

THE GRAPHICALLY THINKING BUSINESS MANAGER

The pace of change is so rapid today that no single organization can ever dominate all effective operating practices and good ideas. To be an effective educational leader, schools must look outward as well as inward for constant improvement and new ideas. The public everywhere is broadcasting the same message to their administrators: "excellence, equity, improvement."

Graphical analysts, with a mandate to look far and wide for better organizational analysis and operating practices, may arguably be among the best sentinels educational leaders can post along the watchtowers of the organization. They can sound the alarm when the first signs appear on the horizon that the organization has fallen behind or has failed to take advantage of important operating improvements developed elsewhere. More importantly, graphical analysis techniques used by these analysts can provide educational managers with the tools, rationale and processes to accept change as constant, inevitable and good. "Change has no constituency," observes General Electric CEO Jack Welch, who has established private sector benchmarking for best practices as an essential part of GE's on-going management and improvement efforts. "People like the status quo. They like the way it was."

The on-going use and adaptation of graphical analysis tools helps an organization avoid being ambushed by unexpected change. A school district can accelerate its own rate of improvement by systematically studying others and by comparing its own operations and performance with the best

and most effective practices of highly innovative and successful school districts. The search for best practices quickly draws you outside the confines of your own culture and personal habits. Graphical analysis is therefore a pragmatic approach to managing change and performance improvement.

Tomorrow's graphically thinking business manager will inevitably evolve beyond or diverge from today's level of expected graphical analysis. By their nature, graphs are dynamic and progressive. For this reason graphical analysis is often called an "evergreen" process: It renews the organization each time it is repeated. Consequently, graphical analysis is an ongoing process that is fully integrated with continuous improvement in public and private organizations.

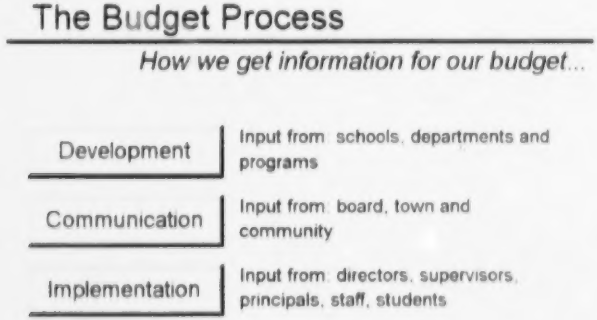
Three Primary Graphical Analysis Levels

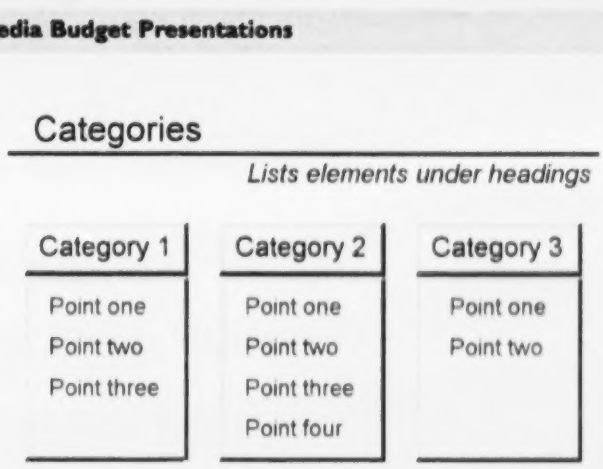
There are three distinct levels of graphic analysis tools: (1) **process graphics**, (2) **performance graphics**, and (3) **strategic graphic** tools. In the sections which follow, we will define and illustrate these three levels of graphing concepts and techniques which can help you think more graphically and, at the same time, utilize multimedia technology to communicate these graphical ideas. It is a powerful combination of skills.

Process Graphic Tools

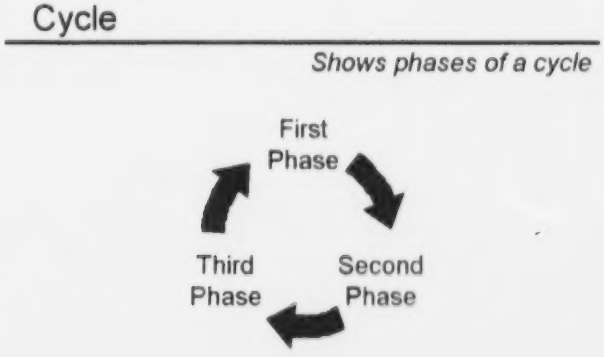
"Process graphing" focuses on discrete work processes and operating systems, such as the line item budget process, state mandated information processing, federal grant application processes, the teacher recruitment process or the policy manual approval process to name just a few baseline processes of school districts. This form of graphics seeks to identify the operating practices from within the district or from the many districts that perform similar work functions. If an organization improves a core process, for instance, it may be able to then quickly deliver important performance improvements. These performance improvements may lead to lower costs or improved reading scores or a more responsive learning environment. Process graphing is, therefore, descriptive in nature, usually requiring graphical tools which describe baseline district processes. Grouping ideas and illuminating the processes by which decisions were reached is an important step toward the community's understanding what the organization is about, what it values and how it functions.

a) Group Charts: The chart below and on page 36 illustrate how to begin to group ideas together, either "accenting" key words or categorizing ideas, such as by listing major functions with sub-descriptors which define and clarify ideas.


The Budget Process
How we get information for our budget...
Development
Input from: schools, departments and programs
Communication
Input from: board, town and community
Implementation
Input from: directors, supervisors, principals, staff, students



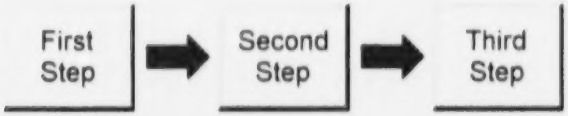
b) Process Charts: After there is clarity about the ideas and components of the task, the process that is followed becomes important. Process graphs allow the public to understand not only the parts but the whole. Cycle charts, flow charts and fan charts help to outline processes.



Cycle charts link major components and ideas together in a time frame which accentuates impact. Cycles take descriptive data and give it a time and importance context.

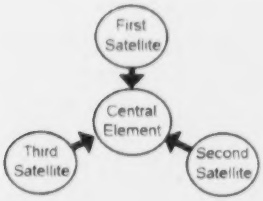
Linear Flow Chart

Shows sequential relationships



Non-Linear Flow Chart

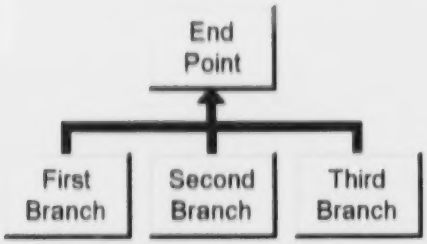
Arrows point to center



Flow charts show how elements of the process directly impact the task or the steps involved in a process, whether linear or non-linear.

Fan In

Points at each level merge up



Fan Charts are the final element of process illumination. What resources were involved in the process? Who were the major players? What

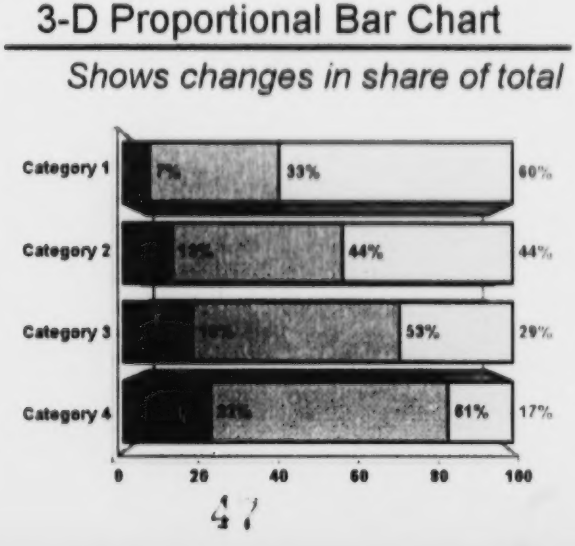
BEST COPY AVAILABLE

levels of input (or output) were in the process? Finally, Fan charts also explore the linearity(or non-linearty) of a process, describing major steps along the way(and diversions as well.) Taken together, these descriptive process tools allow decision-makers to analyze and review the decision paths – its ideas, components, elements, resources, linkages and flow.

Performance Graphics Tools.

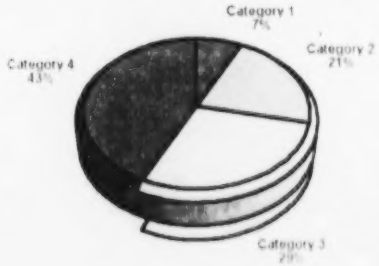
Performance graphing enables school leaders to assess their competitive positions through operational and programmatic comparisons. Performance graphing usually focuses on elements of quality, efficiency, communication and other performance characteristics, and is not just limited to test scores and graduation rates. Performance graphing is comparative in nature, allowing for both internal school and program comparisons and external district and state comparisons. In his book, *Say It with Charts*, Gene Zelazney describes five types of comparisons that comprise the scope of what we call "performance graphing tools" (Zelazney, 1985): component comparison, item comparison, time series comparison, frequency comparison and correlation comparison.

a) Component Comparison: In a chart comparing components, the idea is to convey the size of each part as a percentage of the total. Words like "share," "percentage of total," and "accounted for X percent" are component comparison phrases. Stacked bar charts and pie charts serve component analysis well.



3-D Pie Chart

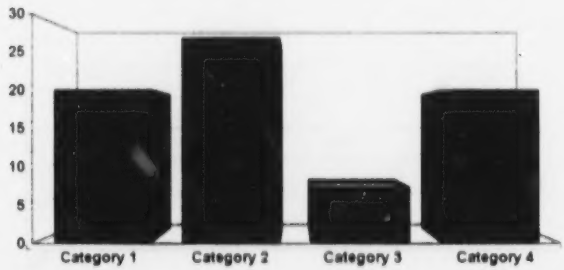
Shows relative contribution to a whole



b) Item Comparison: In an item comparison, we compare by ranking. Are the elements the same? Or, is one item more or less than another? Phrases such as "larger than," "smaller than" and "equal to" note the comparisons.

3-D Column Chart

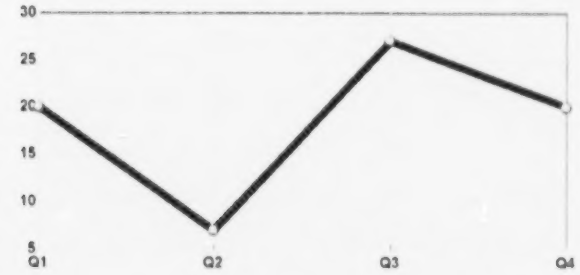
For comparing 1 or more data series



c) Time Series Comparison: According to Zelazney(p.22) this type of graph is the "one we are most familiar with." Size and rank are not important here. How we have done over time is, whether the time is in weeks, months, quarters, years or decades.

Line Chart

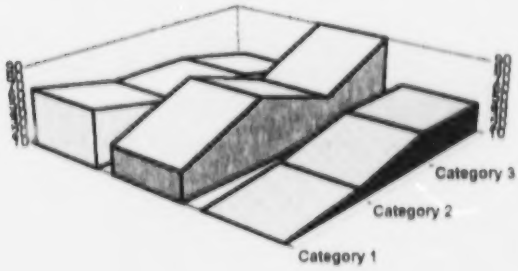
Shows changes in data over time



Words such as "change," "growth," "increase," "decrease," "decline" and "fluctuate" are time-comparison rich words.

3-D Area Chart

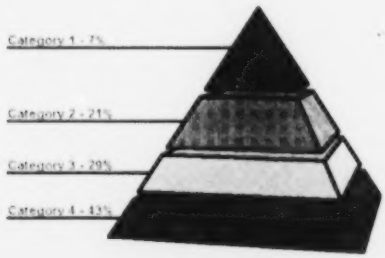
Shows comparisons emphasizing total quantities



d) Frequency Distribution Comparison: This comparison illustrates "how many items fall into a series of progressive numerical ranges" (Zelazney, p.22). For example, how many employees earn less than $25,000? How many earn between $25,000 and $35,000? How many earn more than $35,000?

3-D Pyramid Sections Chart

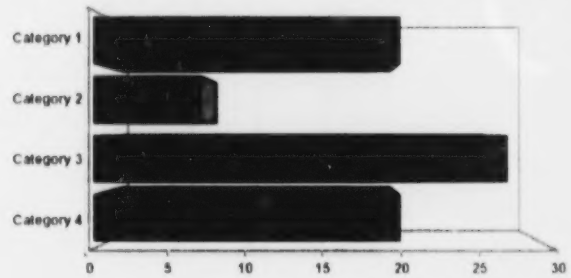
Shows a ranked listing of categorical frequencies by percent



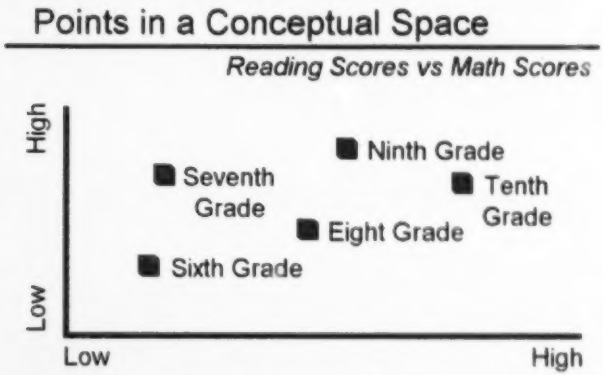
Key phrases in frequency distribution analysis are: What grade level showed the most growth in reading scores?; The majority of teachers have more than 15 years of experience; and The age distribution of teachers is different from that of custodians.

3-D Bar Chart

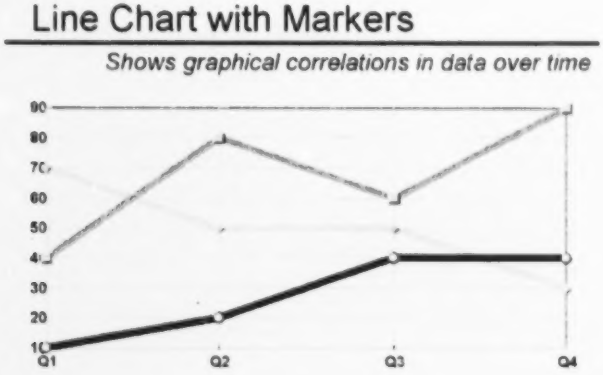
For displaying frequencies for a data series



e) Correlation Comparison: A correlation comparison "shows whether the relationship between two variables follows – or fails to follow – the pattern you would normally expect." (Zelazney, p.23)



Words and phrases such as "related to," "increases with," decreases with," "changes with" and "varies with," or the converse of each, are corelational phrases.



In summary, performance graphing tools examine five kinds of comparisons:

a) Component: Percentage of total
b) Item: Ranking of items
c) Time Series: Changes over time
d) Frequency Distribution: Items within ranges
e) Correlation: Relationship between variables.

Various line, bar, pie, area, point, table and list type charts can be used to illustrate and demonstrate these comparative relationships.

Strategic Graphing Tools

In general terms, strategic graphing:

a) examines how districts survive, improve and excel.

b) influences the longer-term patterns of an organization.

c) is summative in nature, pulling together and digesting wide-scale information

d) is most often external to the school district, but relevant to the district's overall mission and growth.

e) is an easily grasped, functional set of tools. It can help administrators test and probe the latest educational decisions, options and alternatives.

f) promotes the active discovery of systems that embody the concepts in real-world situations.

g) offers a kind of low tech "virtual reality" for organizations eager to understand operational experiences in their own environments.

h) provides a double benefit as a managerial tool: It provides a way to access new ideas and to test or evaluate the implementation challenges they may present in your own organization.

Finally, strategic graphing tools generate one more benefit that is arguably the most important of all. It teaches organizations new lessons in adaptation and change. In this era of technological, economic and social upheaval, it is difficult to imagine many organizations, public or private, for-profit or nonprofit, that can ignore changes in their schools, communities and world. Every organization strives to maintain and enhance its position over time. That is the essence of improvement.

Strategic graphing tools fall into three categories of summative analysis: **Option Analysis** (pro-con, arrows, orbit and triad), **Decision Analysis** (quadrant and ratings) and **Implementation Analysis** (time-line and Gantt chart).

1. Option Analysis reports the findings of the study prior to the decision. The findings are the major facts that were uncovered from both the previously discussed process and performance stages of analysis. The purpose of result analysis is to report, compare and and rank findings in a straightforward, understandable way, particularly for those who have not been closely connected with the process but are stakeholders in the final

BEST COPY AVAILABLE

decision.

We do this with four tools:

a) Pro-Con charts: These charts are simple lists which lay out the advantages and disadvantages of each option. No conclusions are drawn. The data gathered in the process and performance stages are brought into clearer focus.

Pros & Cons

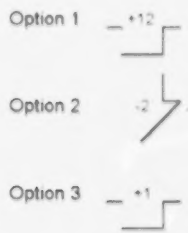
For highlighting two sides of an issue

Advantages	Disadvantages
+ Point one	− Point one
+ Point two	− Point two
+ Point three	− Point three
+ Point four	

b) Arrows charts: One of the easiest and most coherent display analysis involves simple arrows depicting options and measured results against some measured standard. Usually, there is a series of these charts measuring each option against a range of criteria.

Option Arrows

Arrows indicate above or below some standard

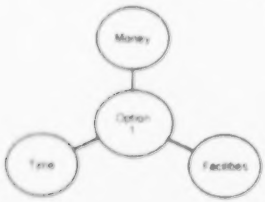


c) Orbit charts: When examining options, orbit charts show the related elements, procedures, resources, alliances and relationships and linkages

of the option with a variety of conditions. Each option, then, has a visual image of "issue satellites" that orbit or impact the option.

Orbit

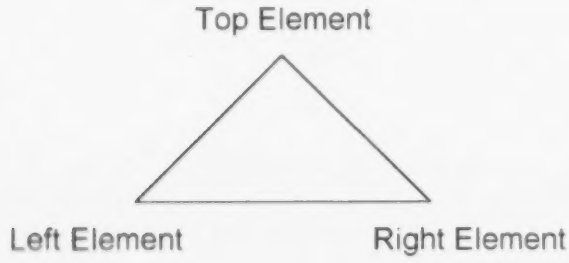
Shows related elements or alliances



d) Triad Charts: Unlike circular orbit charts which elicit an "atmosphere" of issues, triads identify those issues or elements of most importance to the option. Since the triangle is, architecturally, a basic building block, the triad illustrates the major aspects impacting the option.

Option Triad

Shows three equal fundamental points



2. Decision Analysis: When it comes time to make a decision, options and alternatives must be weighed carefully. We weigh data gathered from the option analysis phase and carefully craft a summary tally of each option. We utilize two graphic tools: ratings charts and quadrant charts.

a) Ratings charts: Like those in consumer magazines, ratings charts

allow us to list each option and examine each within a selected set of important judgmental criteria These charts may come in various formats, but each specifically compares options and alternatives. When we're done we simply look at the chart to see trends or add up the circles, diamonds or checks to arrive at a potential choice.

Categorical Rating

Option comparison by scaled ratings

	Feature 1	Feature 2	Feature 3
Option 1	●	●	●
Option 2	◒	●	○
Option 3	◒	●	○

Hierarchical Rating

Ratings from 1 to 4 Diamonds

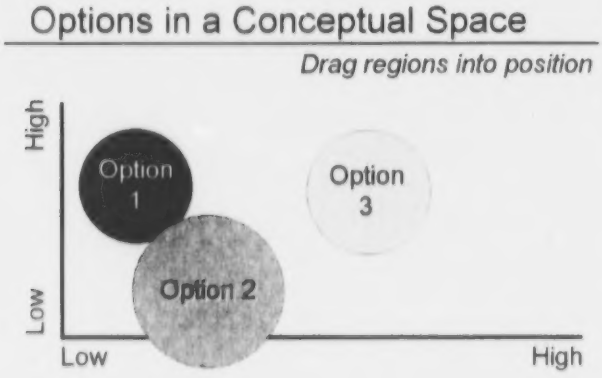
	Feature 1	Feature 2	Feature 3
Option 1	◆◆◆	◆◆◆◆	◆◆◆
Option 2	◆◆	◆◆◆	◆
Option 3	◆◆	◆◆◆◆	◆

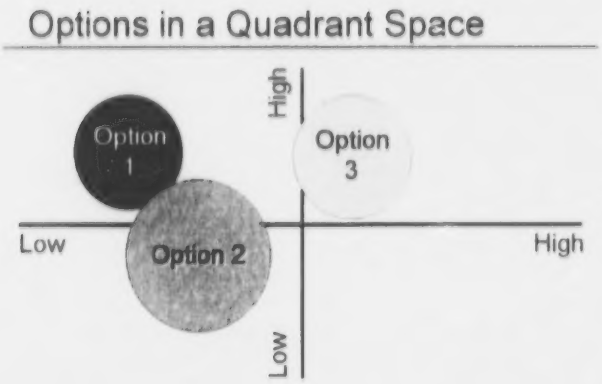
Binary Rating

Check indicates option is above the mean

	Feature 1	Feature 2	Feature 3
Option 1	✓	✓	✓
Option 2	✓	✓	
Option 3		✓	

b) Quadrant Charts: Options can be ranked by category, hierarchy and binary ratings. Quadrant analysis lets us weigh the options using two specific scaling factors of our own choosing. Each option becomes a point, a paired coordinate, by which we can compare each option.



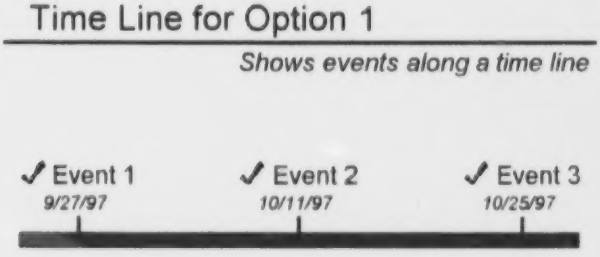


3. Implementation Analysis: Implementing plans for an option need to be outlined before a choice can be made. It may be a good option on paper, but can we do it time? Two charts help us here: a) a simple time line chart and b) a Gantt chart.

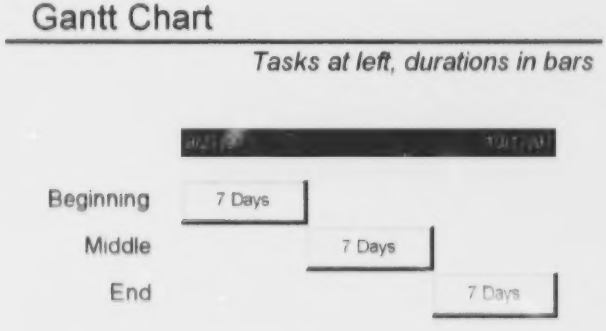
a) Time line chart: It is not surprising that a simple time-line would be included in a summary analysis of options. Both the feasibility and viability

BEST COPY AVAILABLE

are dependent upon when an option starts and how long it will take to be completed.



b) Gantt Chart: Likewise, the attendant tasks to implement an option must also be outlined so that the timeline above reflects specific actions that must be taken and goals which must be met. The traditional Gantt chart lights the way.

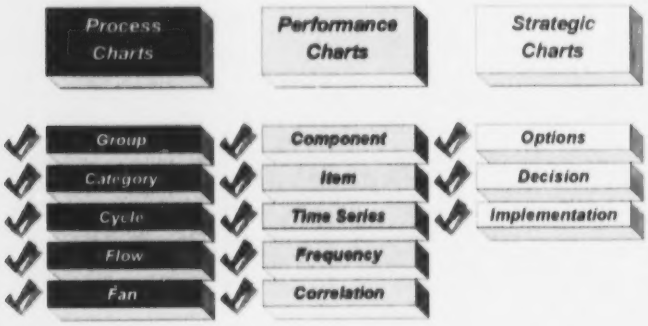


Thus, the graphically thinking business administrator needs to employ these and many other available graphic tools to describe, compare and summarize the avalanche of data that is now a necessary part of every business office function.

Thinking graphically and using the powerful multimedia components now at each business manager's disposal may be the most powerful

enabling factor in becoming the consummate school business official.

Using these graphical tools, the next chapter examines how to produce a multimedia show.



BEST COPY AVAILABLE

Chapter 5

Multimedia Production

The production process for a multimedia budget presentation can take many forms and involve dozens of approaches. Multimedia's inherent flexibility gives the presenter the freedom to produce a unique program with few limits on the designer's creativity. But the novice program developer should keep in mind that multimedia's freedom by its very nature and existence generates a greater responsibility than with other presentation formats to plan the entire production as thoroughly and completely as possible: typically, the more free-wheeling and elaborate the multimedia presentation, the more complex the production process. What is the best rule of thumb to follow during the development of a multimedia school budget presentation? When the presenter finally boots the multimedia authoring software, the production should be half-completed. In other words, fifty percent of the work required to produce an item as complex as a school budget should occur before the program designer even begins to use the basic multimedia production tools.

To apply multimedia technology most effectively, the school administrator should understand both the planning phase and the implementation phase of the multimedia production process. An understanding of the four basic steps in the planning phase will enable the school administrator to begin by asking the right questions – about overall district communications strategies, about hardware and software configurations, about the goals and purposes of various kinds of budget presentations. Once the preliminaries are out of the way, the school administrator can begin the production process by carrying out the four basic steps in the planning phase: (1) Analyze the audience in multimedia terms; (2) Set

goals and objectives from a multimedia perspective; (3) Consider multimedia logistics; (4) Adopt a basic multimedia production strategy.

The Planning Phase

■ Step #1: Analyze the Audience in Multimedia Terms

Every multimedia communications effort should be designed to transmit the presenter's message to the audience through utilization of the most appropriate technologies and techniques. In almost all communications activities, the presenter is seeking to persuade the audience about something, to generate the right "spin," to sell a point of view -- even when the stated purpose is simply to present the audience with information on a given subject. But to be able to communicate persuasively and effectively, the presenter must plan the effort with as much knowledge as possible of the audience's characteristics and expectations. Even though the audience for a school budget presentation (or similar event) can be described in many ways, school administrators may find that the three most important categorizations refer to the audience's role in making decisions affecting the district. Consequently, the presenter's analysis should focus on determining whether members of the audience should be characterized as Decision-Makers, Specifiers or Influencers.

1. Decision-Makers: Board members, district-wide administrators, local government officials -- these leaders, as members of the audience or as participants in a budget planning session, may be present at a budget planning session or budget hearing for several reasons: to judge the value of any information or recommendations being presented; to gain input which might contribute to the exercise of their relevant responsibilities; to form an impression of the presenter and of the presenter's organization. Decision-makers often will arrive at a budget presentation with preconceived notions about the subject matter and with limited time for analysis and deliberation.

The school administrator's multimedia strategy can be crafted to appeal especially to decision-makers. Typically, these individuals will be influenced heavily by the depth of information and by the presenter's aesthetic execution. Consequently, essential budget materials should be demonstrated by animations, diagrams, visual case studies, charts and

graphs -- and the key points might best be hammered home in video sound-bites pulled from the targeted comments of recognized experts or local authorities.

2. Specifiers: Finance committee members, district "staffers," union bargaining agents -- such persons are charged with making "specific" recommendations about the school budget, and they may or may not play a decisive role in the final decision.

Usually, their knowledge of the budget is considerable, and they are especially interested in detail and expert analysis. The presenter should expect specifiers to be less impressed by flash and sparkle; sometimes they may even look upon multimedia sound and visuals as part of an effort to "razzle-dazzle" them in order to compensate for a lack of substance and accuracy. Every effort should be make to determine their level of training and experience before crafting the presentation, but most specifiers can be reached successfully by adopting an interactive approach that offers multiple levels of information. By using authoring software with interactive features, the school administrator can develop a presentation with the flexibility to adjust both the amount of detail and the level of expertise to match audience interest and response.

3. Influencers: Community leaders, vocal parents and citizens, teachers, reporters -- these individuals lack the authority to make decisions or to offer specific "official" recommendations, but they still can exert an influence that might be crucial to the budget presenter's success or failure. Influencers might come to a session to gather facts or to express a point of view; they may come as a group with strong views on a particular budget component; or they may arrive alone with little more than a general interest in the topic. Influencers are the best audience for an "evangelistic" presentation because they will respond as much to the presenter's energy and enthusiasm as to the information presented. Appropriate multimedia strategies should focus at least as much on engendering an underlying sense of drama and excitement among influencers as on imparting specific information. Ideal for this audience are the more entertaining multimedia options -- including humorous animation, lively video clips, music and dramatic graphics.

■ Step #2: Set Goals and Objectives from a Multimedia Perspective

Even before analyzing the audience, the school administrator should begin to formulate a clear picture not only of the expected results, but also of the precise contributions multimedia can make to help realize the desired outcome of the budget presentation. What is it about the basic message or the specific budget information that justifies the special effort required to create a multimedia presentation? Why bother with multimedia, even though almost any material can benefit from multimedia enhancement? Remember that multimedia strategies are most effective when they are employed to clarify confusing messages or complex information; they should never be used to form a fancy border around a faded, unclear picture. Multimedia is an effective tool for cutting through layers of confusion, bridging knowledge gaps, and building on limited experiences – not for gilding the lily.

What are the presenter's goals and objectives? To formulate a clear image of appropriate goals, the school administrator should begin by asking exactly what response is desired from the audience. Should they authorize allocations for a bold curricular innovation . . . accept an unpopular budget decision requiring a hike in the tax-rate . . . adopt a realistic point-of-view on salary increases for next year? As a direct result of the presentation, what is the audience expected to think or do . . . to feel or know? The answers to these questions will help determine the objectives as well as the particular strategies, tactics, and procedures to be employed in reaching the presenter's goals. The objectives for any multimedia applications should include some combination of the following: to inform, to persuade, to teach, to entertain. Careful attention in the early production stages to the formulation of well-defined goals and objectives should establish clear parameters for determining the bulk of the budget presentation's content– and, thus, for selecting the specific facts and figures which will be communicated.

■ Step #3: Consider Multimedia Logistics

Putting together a multimedia budget presentation requires that due attention be given during the planning phase to such key logistical considerations as time and location.

The first critical factor may be the overall time allotted for planning and implementation. The plethora of multimedia choices makes it difficult, if not impossible, to determine beforehand exactly how long it will take to produce a particular project. As a general rule, however, professional multimedia producers expect to spend about sixty times as much time on production as on the actual presentation itself – a production-to-presentation ratio of sixty to one. In other words, about one hour of production time is required to produce one minute of the actual multimedia presentation. (Note: The 60:1 ratio applies only to the implementation phase of "basic" multimedia presentations and does not include any time spent brainstorming or organizing content; the novice should consider multiplying the basic ratio by three.) For the typical project, probably more than half of the total production time will be consumed by the non-technical aspects– including conceptualization and design. As the multimedia novice becomes more familiar with the production process, however, shortcuts will be learned that can dramatically shorten the time spent. It's a good idea to learn some of the shortcuts before committing to a very heavy multimedia presentation schedule.

Location must be considered when making decisions about content, media types, media design elements, tools, and display technologies. Under optimal circumstances, the school administrator may be able to "order to specs" the program location and other related factors. But common sense dictates that the multimedia planner make preparations for a program environment with limiting features that affect audience size and media selection. While presentation media must be selected with the overall program environment in mind, the first consideration always should be audience size.

■ Step #4 – Adopt a Basic Multimedia Production Strategy

Once the first three steps have been considered, the presenter is ready to ask the next question: "How am I going to get the job done?" While the full answer should take into account a wide variety of logistical concerns, the first item on the agenda should be to decide how much outside help will be utilized. Because multimedia production relies upon desktop technology (akin to desktop publishing), the average school administrator should be able to complete the typical budget presentation

without outside help if he or she knows the subject matter, uses the proper equipment, and understands the multimedia process. The decision regarding outside help should depend on a proper weighing of the following considerations: the presenter's multimedia skills and interests, the available technology, the time factor, cost variables, the program environment and the desired complexity of the presentation. For routine presentations (before a board committee or an "in-house" business office budget planning session), the average school administrator should be capable, single-handedly, of turning out a finished product using only a multimedia-capable computer, an authoring-software program, and some clip media on CD-ROM. When the occasion arises to move across the spectrum to larger projects (involving such events as an annual budget presentation or a legislative hearing or a bond referendum), the wisest course of action may be to engage the services of a freelance consultant or a professional multimedia production firm.

The Implementation Phase

In order to utilize multimedia technologies most effectively, every school administrator should master the fundamentals of the implementation phase of the multimedia production process. Because the rules for producing a quality multimedia product generally hold true with little relation to size or complexity, the process presented below outlines the fundamentals for the largest and most complex efforts. Relevant aspects of the process can be scaled down to fit any category of budget presentation.

The basic steps in the implementation phase are probably roughly similar to those for the production of stage plays or films, but there is no "correct way" to generate a multimedia budget presentation. Because multimedia technology is evolving so rapidly and changing so constantly, few standard methods can be highlighted and few measures of excellence seem to last longer than the fleeting heyday of the latest hardware and software choices. Today's whiz-bang, knock-`em-dead multimedia options soon may become tomorrow's yawn.

■ **Brainstorming —** The multimedia implementation phase begins at the conceptual stage with a brainstorming period focusing on content ideas. All content ideas should be listed immediately as they occur, with

critical evaluation coming after enough ideas have been generated to warrant identification of the most relevant. Critical evaluation should determine whether specific content ideas will contribute to the goals and objectives set earlier for the presentation.

■ **Researching —** The research process should involve not only factual searches for relevant data and supporting information, but also investigations into the content and the availability of potential media components (e.g., videos, photos, audio recordings).

■ **Organizing —** Every presentation must be developed with a basic organizational scheme clearly in mind. Depending upon the ultimate goals, the material might be outlined for a presentation with narrative, expository, or educational features. But interactive multimedia capabilities can facilitate shifting from one conceptual framework to another as two or more of a series of schemes seems most appropriate: chronological, organizational, geographic, ordinal, relational, categorical, normative and journalistic. In any event, the best approach is to outline the material as thoroughly and with as much editing as possible. Take advantage of the "outline" feature available in most presentation software (e.g., PowerPoint, Astound, Persuasion, Freelance).

■ **Storyboarding & Flowcharting —** A storyboard consists of a series of "sketches" (either hand-drawn or computer-generated) of individual visual frames into which the basic program content has been organized. Many presenters regard the storyboard as the most important production tool. Writers, artists, programmers and others use it as a blueprint for the entire production; often it is the only visual reference tool provided to the production team by those with creative responsibilities. Consequently, multimedia program developers should devote sufficient time and energy to the storyboard as a guide for the implementation phase of the production process. But they should also consider preparing a flowchart to depict visually (using only words and symbols rather than "sketches") how various media elements will be sequenced. As a planning technique adapted to the multimedia production process, flowcharting offers an effective way to give due attention to programming logic and the structure of media applications while implementing the multimedia production process.

■ **Background Templates, Key Graphics, Interactivity & Prototyping —** Preparing a prototype (or "mock-up") of a multimedia presentation is tantamount to preparing a rough draft. The ultimate goal of prototyping, however, is to determine the merits of potential multimedia elements by checking out background templates, testing key graphics, and trying different options for interactivity. Background templates (available in many multimedia software programs) should be chosen early in the design phase. And because system performance and video comprehension options vary widely enough to make a difference, careful consideration should be given at the same time to the compatibility of major graphical elements with the templates selected. In addition, the prototyping process should include a playback test of video and sound files to pinpoint any serious system limitations – especially a lack of RAM – which will decrease video playback capabilities. When checking out different options for interactivity, the major selection standards should always be clarity, user friendliness, and pausing features.

■ **Scriptwriting —** Scriptwriting may involve the preparation of "voice-overs," video scripts, and the presenters' scripts. All three may be completed by using multimedia authoring or presentation software – or even a word processor. Scripts should include not only the words to be spoken, but also any special instructions relative to pauses, inflections, or character voices.

■ **Video Production —** Videography is an art form that should be approached with as much professionalism as possible. If the project goals are lofty and the budget is adequate, the school administrator should rely upon professional producers, directors, and editors to create or to gather the necessary media elements and bring them together. In order to successfully incorporate video passages in the final budget presentation, the video production team must understand the overall multimedia framework – as reflected in the storyboard, flowchart and prototype.

■ **Capturing Media Elements —** After the media elements have been developed, they must be "captured" into digital files to make possible their manipulation on a hard drive. Videos can be captured by using a video board; photographs by using a scanner; sounds by using an audio card. Prior to carrying out this aspect of the multimedia produc-

tion process, the program developer must select appropriate standards for file formats; and the authoring system must be capable of supporting importation of the files.

■ **Authoring —** Authoring is the process of sequencing the presentation, laying out the media elements on the screen, and entering the instructions for interactivity. Authoring is the culmination of the multimedia production process: Finally, all the media elements are pulled together and assigned a time and place. Even though the authoring process has become quite straightforward in most software packages, plenty of time should be set aside to complete this phase – especially if the program developer is new at it.

■ **Testing & Editing —** The multimedia production process should end with a final period of testing and editing, but preliminary testing should be conducted throughout the entire implementation phase. Testing involves running sequentially through the frames and looking for such problems as unaligned graphics, incorrect files, misspellings, and typographical errors. Any errors or problems should be corrected or noted. Editing sessions also may occur throughout the implementation phase – with substantial changes being followed by additional testing and editing until the production process is completed and the budget presentation is ready to be delivered.

The complexities of producing a multimedia school budget presentation obviously require that the school administrator understand a production process which goes well beyond that followed for a regular presentation. Initially, some school administrators may find the multimedia production process to be somewhat overwhelming; indeed, the process does depend heavily upon careful planning and implementation. But by developing the expertise necessary to carry out the multimedia production process, school administrators can increase their chances of exercising the appropriate educational leadership role within their districts.

Chapter 6

THE EFFECTIVE MULTIMEDIA SCHOOL BUDGET PRESENTATION

In most important respects, the elements of an effective presentation will remain the same whether the format is traditional or multimedia, whether the subject is weekly staff assignments or the school budget. In general terms, those elements should reflect certain standards of effective journalism or good story-telling. Are all aspects of the presentation clear, simple, interesting and structured? Are ideas and facts presented unequivocally in a manner that grabs and holds the audience's attention? Are key concepts backed up with supporting information? Does the presentation take fully into account the audience's knowledge and background? Does it flow logically, and does it use time efficiently? With regard to the multimedia school budget presentation, the school administrator's ultimate goal should be to attain the same aesthetic quality as professional media personnel for a production that brings together all the necessary elements of an effective presentation.

In addition to the standards mentioned above, proper attention should be devoted to several other important considerations that will strengthen the effectiveness of a budget presentation. A speaker can enhance his or her persuasive power and increase the audience's receptiveness by taking action to create the right impression. Clothing should be selected to fit the occasion; when in doubt about the appropriate attire, chose the more conserva-

tive style of dress. By adopting a positive and enthusiastic outlook, the school administrator can set the tone for the entire event. The audience will be likely to adopt the same outlook and to look more favorably upon the information being presented. A speaker's mannerisms should indicate that he or she is decisive and in control of the situation. Nervous mannerisms might contribute to an aura of uncertainty that could undermine the audience's faith in the presenter. By projecting an image of self-confidence and certitude, the speaker will gain the audience's confidence and let viewers know that he or she truly believes in the budget he or she is presenting. Yet none of these considerations will matter unless the speaker has crafted an excellent budget presentation and has prepared carefully and thoroughly to deliver it.

In keeping with an ecological perspective, and pursuant to the school administrator's leadership role in defining reality, the budget presentation should be designed to engender broad community support for the local district's mission and philosophy. As a public event whose major purpose is communications, the effective budget presentation will culminate a process through which information gathered has become information processed, and data has been transformed into knowledge that can serve as the basis for community action. By organizing a wealth of budget information in a manner that supports the telling of a logical story, the school administrator can go beyond the explanation of resource allocations, planned expenditures and anticipated revenues to the presentation of a comprehensive action plan for the district. For the presenter, two key questions are: How can the budget presentation best promote understanding, support and approval by the district's constituents? How can the school administrator provide leadership in the design and delivery of an effective budget presentation? The ultimate response to both questions should be to apply multimedia techniques throughout a highly participatory budget process that involves all appropriate district constituencies. At the same time, the school administrator should consider following the guidelines for ASBO International's Meritorious Budget Awards as presented by Dennis Strachata in *Standards of Excellence in Budget Presentation.*

Visionary thinking and effective communication of an appropriate vision may be the most important functions of an educational leader. According to William Hartman in *School District Budgeting* (1988), the budget

is the school administrator's most important management tool for turning vision into reality. Just as multimedia analytical techniques can play a crucial role in formulating the school budget, multimedia presentation techniques can help the school administrator explain the district's budget message in a way that supports the overall vision. Moreover, by expanding on the views of Reigeluth, Annelli and Otto in "The Electronic School" (1992), school administrators can apply technology as a catalyst for systemic change by using multimedia techniques as key components of an "ecological approach" to educational leadership. Hughes and Richard (1995) describe the "ecological approach" as a formula for educational leadership derived from the position "that children are a vital resource that must be protected, nurtured, educated and socialized to preserve and advance human society and the environment in which we live and upon which we are dependent for life" (p. ii). Because this approach involves a strong commitment to decision-making based on precise information about the "ecosystem" in which the local district is located, the school administrator cannot follow the approach without first mastering the conceptual and technical skills required to apply computer technology and information management systems in both the organization and analysis of information and in the presentation of the results.

Even though the typical school budget is a complex document, the presenter must always keep in mind the need for clarity, simplicity, cohesiveness and audience appeal. While the substantive core of the presentation should consist of the eight essential components listed below, the presentation's effectiveness will be enhanced by a relevant storyline that welds the components together. And the presentation also should reflect the adoption of a consistent design concept with eye-catching appeal; the application of appropriate color combinations and contrasts; the employment of graphic sequences and sound or music to please the senses; and the use of photographs, autobuild, bit maps, film and video clips to maintain interest every step of the way. Like a great movie, the effective school budget presentation will tell a story with a beginning, middle and end – and it will draw upon multimedia techniques to stimulate the audience's senses, expand their minds and capture their hearts.

Every district should develop a customized format for the budget presentation by building upon some essential components. The basic structure

should include eight required sections: Introduction; Mission Statement; Goals and Objectives; Budget Components and Fiscal Comparisons; Breakout Costs; Drivers and Balancers; and Tolerances, Cycles and Forces; Summary and Conclusions. Presented below are some suggestions for each section.

Introduction:

The introduction should open with a slide containing a title page followed by a list of key district personnel and a brief message explaining the presenter's purposes. The district's name and any other identifying symbols might be displayed. A set of slides should briefly introduce the major components of the budget. An overview of the budget in "plain English" should be included. The introduction should give the audience a general idea of the district's basic philosophy, educational programs, curricular standards, economic condition, financial policies, changes in expenditures and calendar of events. The board of education's budget committee might be introduced along with members of the site-based budgeting committee or other persons who contributed to the budget process.

Mission Statement:

The mission statement should make clear the general direction in which the district is headed. The district's overall purposes should be stated as briefly as possible. As a vital component of the budget presentation, the mission statement should serve as the rationale for establishing various priorities, making program choices and recommending budgetary allocations. This section will be most effective when presented as a short paragraph or a bullet chart. Following is an example of a mission statement:

Hometown School District is dedicated to fostering a school ecology that:

- instills joy in learning
- creates social awareness and mutual respect
- offers every pupil the opportunity to experience success
- prepares every pupil to meet the demands of an increasingly competitive workplace

Goals and Objectives:

Specific goals and objectives should be established in keeping with those actions required to accomplish the district's mission statement. The district superintendent may be called upon to discuss future plans in detail. In light of the mission statement presented above, the district's specific goals and objectives might include revising the methods of instruction to engage the students more successfully in the classroom, raising district-wide scores in math and reading by specified increments, elevating high mobility students to higher performance levels, creating a developmentally appropriate learning environment and initiating collaborations involving students, families, schools and community groups.

Budget Components and Fiscal Comparisons:

By including a section on the budget's components, the school administrator can give members of the audience a general understanding of the composition of the budget. This section should answer the following questions: Where is the district's money going? How are expenditures classified within the budget?

Normally, school budgets are organized by program allocation or by line item, and they are divided into three main budget components: personnel, fixed expenses, operating costs and equipment. The exact amount of any funding increase or decrease should be given for each general budget component. Arrows can be used to highlight noteworthy increases or decreases. Double pie graphs can be used to represent the budgetary allocations graphically and to illustrate fiscal comparisons in the same manner.

Breakout Costs:

The section on breakout costs should compare past and present expenditures and provide explanations not only for changes but also for consistency. Breakout costs can be examined very effectively by linking a pie graph to a bar graph. For example, district personnel costs (comprising 69% of a typical district's budget) might be depicted on a pie graph of the three main budget components, while the same component broken down into four areas (high school, middle school, elementary schools and other) could

be illustrated with a bar graph showing the breakout costs for each area.

Drivers and Balancers:

By clarifying the impact of drivers and balancers, the school administrator can convey to the audience a clearer picture of important budgetary realities. Pointing out the drivers will identify for the district's constituencies those budget items that drive up costs yet remain beyond the district's control. Generally, mandated increases in personnel costs are a major driver and voluntary cuts in equipment costs are a major balancer. Presenting information about the balancers will show interested parties which budget items are decreasing or stabilizing. Clarifying the impact of drivers and balancers is crucial to communication of the main features of the budget. An effective budget presentation should focus on specific information (about drivers and balancers) which helps to demonstrate how budgetary decisions support not only the district's mission statement but also its specific goals and objectives.

Tolerances, Cycles and Forces:

In keeping with the ecological perspective championed by Hughes and Richards (1995), the budget presentation should clarify the impact of tolerances, cycles and forces on the district's budget-development process. The "pathmarking" of tolerances, cycles and forces should be conducted to generate evidence of the district's effectiveness and to shed light on any barriers to its success.

Tolerance analysis is carried out to lay a foundation for the selection of specific goals and for the adoption of the action plans required to accomplish them. Tolerance analysis fosters high expectations among the members of a group. The presenter can garner the best results by illustrating tolerances (i.e., the "gap" between achieving a desired goal and maintaining the status quo) in graph form and then following up with a depiction of the action plan adopted to fill the "gap."

The pathmarking of cycles involves the analysis of longitudinal data to pinpoint trends and phases, peaks and troughs, and recurrent points as well as critical-, threshold- and break- points. Students enrollment trends – normally a major consideration in the budget development process – can serve

as examples not only of the information provided by the analysis of cycles, but also of the relevant applications. The presenter should explain several related matters: how enrollment trends are used to estimate and predict future student populations; how they affect financial calculations; and how they help determine such factors as personnel requirements, facility needs, allocations for supplies and equipment, and revenue projections for state and federal aid. Multimedia applications might include graphs and bullet charts to illustrate important cycles: A multiple line graph might depict projected enrollment declines or increases for each of the next five years; a bullet chart might present facts, conclusions and speculations regarding trends and phases that promise to affect the district.

Forces are the "internal and external demands" on the district budget produced by historical, structural and other environmental factors. "Our society, and inevitably our schools," say Hughes and Richards (1995), "are increasingly subject to non-incremental changes by a combination of adverse and positive forces which are expressed in educational policy, politics, finance, technology and demography"

Identifiable forces emerge from the examination of past events. Certainly, those forces exert a major influence on any organization's current and future plans. Among the forces that might affect the typical school district's budget are: historical trends, events, and people; political and social factors; and a host of other environmental concerns – including conflicting community expectations, fiscal uncertainty, state and federal demands, increasing student enrollments, teacher shortages and collective bargaining issues. During the budget development process, the impact of such forces should be clarified by applying modeling techniques and engaging in as much quantification as possible. Obviously, the multimedia school budget presentation should employ the best available techniques to depict those forces and to demonstrate their consequences.

Summary and Conclusions:

Like the ending of a captivating motion picture, the budget presentation's summary and conclusions should leave the audience feeling pleased about the event, content with their knowledge of the budget and satisfied with the results of the budget process. The summary should review the district's goals for the next budget year and highlight the educational plans

designed to accomplish those goals. The financial wrap-up should be a major feature of this portion of the presentation, and the potential impact of any budget cuts or reductions should be pointed out. The conclusions should cover the district's long-term objectives as clearly and as concisely as possible. Future plans might be discussed in moderate detail, but the presenter should keep in mind the need to finish briskly and conclusively. A text chart – perhaps a bullet chart – could be used to present concluding remarks. Frills might be added in the form of music, sound, voice-overs, photographs, bit-maps, snap graphics, buttons, video clips or animation. The appropriate mix of these elements can help provide the excitement and enthusiasm needed to rally the audience around mutual interests and common values, to send them away in a supportive frame of mind and to bring about closure of the presentation.

Along with the tremendous potential of multimedia technology comes the need to plan and control numerous complex aspects of the program delivery process. Part of the challenge is to get some sophisticated equipment to work in the proper manner – portable computers, LCD projectors and sound systems. Another concern is the relatively high cost of multimedia production (both in dollars and time). With such considerations in mind, the multimedia presenter should give due consideration to the following critical delivery factors:

- **Lighting** – Avoid direct lighting on the presentation screen because it will "wash out" program visuals and reduce readability. In most cases, the presentation room should be semi-darkened, with only enough ambient light to allow the audience to take notes.
- **Sound Interference** – Determine the activities scheduled for adjoining rooms and evaluate their likely impact on program audio content. Check soundproofing. Beware of locations next to noisy exterior walls or crowded interior corridors.
- **Interruptions** – Avoid interruptions by posting "program in progress" signs, assigning door monitors and scheduling time for the program "start up" phase.
- **Room Temperature** – Make certain that the program location can be thermostatically controlled to ensure the comfort of the audience. Assign someone to monitor the temperature.
- **Room Set Up and Seating** – An impressive multimedia budget

presentation will garner less than optimal results if room arrangements do not facilitate audience viewing. Make certain that the presentation screen is large enough and that no audience members' views are obscured.

■ **Sound System** – Perform a sound check in the actual program location at least one hour before the time scheduled for the budget presentation. Consult with professional audiovisual staff members, check microphone mixing and audio levels and run through the audio components to determine if sound levels are appropriate throughout the program.

■ **Computer Configurations** – The best strategy is to use your own computer for multimedia presentations because different computer configurations will almost always affect audio and video synchronization. If an unfamiliar machine must be used, check the type and speed of the CPU, RAM capacity, free hard disk space, type of monitor adapter card, and monitor connector type well before the program.

■ **Rehearsal** – The rehearsal is not merely a repeat of the testing process. Rehearsal sessions should give the presenter an opportunity to practice vocal inflections, pronunciation, expressions, gestures and timing and transitions.

■ **Backup** – Many presenters insist on the security provided by backup copies of all presentation components – including the budget presentation itself, applications software, operating-system software and the computer system.

Developing and delivering an effective multimedia school budget presentation may demand more of the school administrator's creativity than just about anything else he might attempt. To be successful, however, his creative efforts must focus, first and foremost, on the development of a unifying storyline. Considerable attention must also be devoted to the best ways to: interpret complex budget information as simply as possible without sacrificing clarity or meaning, incorporate pictures wherever conceivable and select other media elements (sounds and symbols) that are both relevant to the graphics and easily recognizable by the audience. For the school administrator to be able to carry out the production process in the optimal fashion, he or she must acquire some relatively sophisticated new multimedia skills. But by applying those skills appropriately, he or she can analyze, interpret and explain budget information in a manner that takes into

account both the multimedia imperative and the ecological approach to school management. One important consequence might be assumption by the school administrator of the mantle of leadership that goes along with being the one who defines reality. But the most significant result will be the direct contribution made to the demystification of the school budget – a consequence that is almost guaranteed to generate support for the district's goals and objectives.

Chapter 7

ON BECOMING A DIGITAL BUSINESS ADMINISTRATOR

In his book, *The Digital Workplace*, Charles Grantham discusses the role of the "digital manager:"

> "Digital managers no longer live on spreadsheets alone. Computer communication tools, through the infusion of multi-media software, have opened the door for all managers to more effectively communicate complex ideas to a generation weaned on photo-ops, sound bites and 3-D television graphics."

Multi-media presentations, according to Grantham, are a vital communication medium in businesses, associations and educational settings. They provide an opportunity to share a great deal of information in a very short time. "Sources vary on how many presentations are given every day," Grantham continues, " but some estimate that 25 to 33 million occur each and every day." Individuals from every walk of life find they are being called upon to share information with others in group settings. And, yet, few of us have been empowered with an inborn ability to be effective speakers. The multi-media toolbox enables the ordinary lay speaker to put together a command performance.

But there is more here than meets the eye. The traditional view of management has shown equal emphasis on the three areas of leadership, man-

agement and organization. Today, that emphasis is being replaced by a new triangle of management: information, technology and communication.

Figure 1: A New Triangle of Management

The new digital business administrator who can analyze complex data and communicate his or her ideas clearly and succinctly will have the edge over those who are bound to more traditional speeches and paper-driven reports.

With the advent of faster hardware and more sophisticated, menu-driven software, presentations are becoming a crucial part of meetings, and an effective presentation will have an impact on the success of the meetings' outcomes. Some studies, according to Grantham, confirm that the average top or mid-level executive spends more than 50 percent of a typical day in meetings, many of which are not among the most stimulating events they attend. In an editorial in *Presentation Products Magazine*, Lindstrom (November, 1990) made the following comment: (in Grantham, 1995)

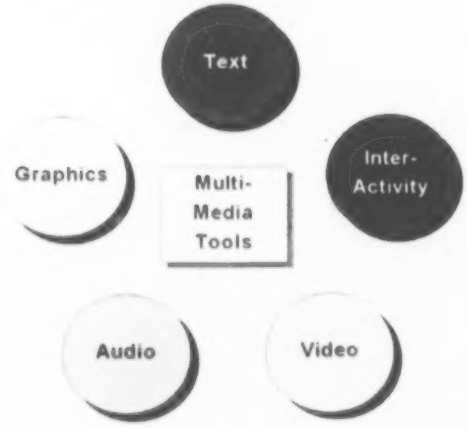
> "Is there anyone who has not at some time attended a seminar, business meeting, or training session in which the stimuli were so light they could barely be detected? In a study of 200 U.S. corporate vice presidents by Motivational Systems in West Orange, New Jersey, 4 out of 10 of the executives admitted they have dozed off while listening to a presentation. When asked to rate the average business presentation, 51.5 percent of the subjects said 'interesting or stimulating,' while 44.5 percent said 'boring or unbearable.'"

"If presenters and meeting leaders can become more effective," according to Grantham, "personal and organizational productivity should increase." In today's educational workplace, increased communication, information flow and productivity are as vital as in the private sector. In fact, if we were better at communicating even some of the complexity involved with administering schools and student learning, we might be able to become better and more effective marketers of our ideas with an increasingly cynical public. "The persuasive power of an incisive presentation", Grantham concludes, "can be what makes the difference in a manager's overall success."

What is Multimedia? A Recap of Major Points

The term really says it all. Multimedia combines a variety of communication tools together enabling the author to create a story, much as a filmmaker creates the screenplay for a movie. (Figure 2)

Figure 2: Multimedia's Major Components



The digital business administrator's multi-media toolbox has 5 major attributes: **text**, usually in bulleted or note form; **graphics**, including charts, graphs, pictures, clip-art, photos and diagrams; **audio**, such as voice narration, electronically produced music from synthesizers, digitally mastered music from musical instruments and sound effects; **video**, including pre-formatted motion clips purchased on a CD-ROM or originally produced

video; **interactivity** in slide movement, object transitions, object interactions and buttons to control the actual flow of the entire presentation. Today's multi-media toolbox allows the digital business manager to construct, control and communicate information beyond the written report with the sophisticated tools of a film-maker.

Three Types of Communication Strategies

Howard Gardner's seminal work on learning intelligences (*Frames of Mind*, 1985) pointed to seven distinct modes of learning: visual, motion, music, inter-personal, intra-personal, linguistic and mathematical. The multimedia toolbox deals effectively with these learning styles by allowing the author to build the message and present it in a variety of ways for the audience to learn and engage in that message.

There are three distinct formats a presentation can take. (Figure 3)

The Passive Kiosk: If you were a European citizen during the Renaissance, you would be familiar with town kiosks: large, wooden or brick obelisks standing in the town square where written and verbal information was made available. People congregated around these obelisks to hear stories of town news, regional events and even world travel. A passive kiosk, therefore, is a presentation where the presenter prepares a set of slides and narrates those slides in a pre-arranged order. (Figure3)

Figure 3: Three Types of Presentations

The Active Kiosk is a presentation which also has a prearranged order, but moves automatically from slide to slide with built in narration, background music or video to support the message. Active Kiosks can be shown on computers in the back of an auditorium, for instance, prior to a

major report, so that the audience can become familiar with some of the background information before the discussion begins.

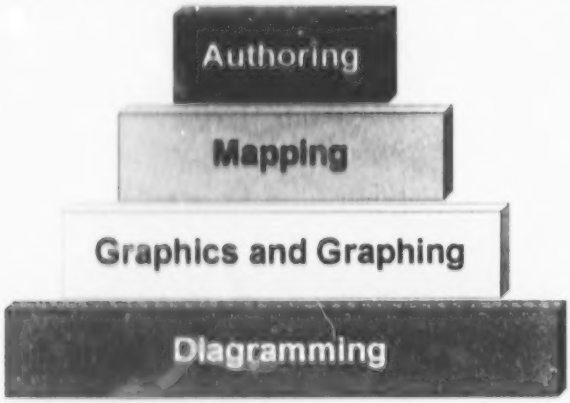
Interactive Kiosks also stand alone, but allow learners to move through the presentation at their own pace and in their own way. Buttons or screen aids allow users to move randomly through the ideas presented, focusing on those of more interest and by-passing those of known or lesser interest.

Since our audiences learn in a variety of ways, so should we present those ideas with the same variety of options.

What's in the Multi-media Administrator's toolbox then?

Presenting the information is usually the final step in the process of communication. Choosing the way you collect and analyze information is among the first steps, and there are a variety of new software programs that enable the multimedia administrator to organize, analyze and synthesize these data. These software packages generally fall into four broad categories (Figure 4).

Figure 4: The Digital Business Manager's Toolbox: 4 Shelves



1. Diagraming

Lines, boxes or arrows are helpful in making flowcharts, organizational charts and other types of diagrams to show sequencing or natural order and flow. Lines and shapes help people grasp concepts better than mere word

BEST COPY AVAILABLE

lists.

The actual process of gathering and analyzing data is sometimes more important than the result. Methodology, a research term, speaks to the integrity of this process. It's the old "garbage-in, garbage-out" slogan. Sometimes, processes are complex, and explaining them to an audience not nearly familiar with your work is more important than reporting the results.

Flow-charting programs enable the presenter to snap a sophisticated diagram together in minutes.

Pyramids show steps; circle diagrams illustrate important process elements; comparison tables show bench marking; Venn diagrams help the audience see relationships. All of these diagrams and many others already built for you can be done without a huge learning curve and, in many cases, for around $100. Examples include **Micrografx's Flowcharter 4.0 or 7.0** with the **SnapGraphics** program. Another new entry is **SPC's Active Office**. Both programs give you, the presenter, easy-to-learn tools to translate complex ideas in simple and powerful ways.

2. Graphing

There are two types of graphing: graphics and graphs. Graphics can be interpreted in several ways. For discussion purposes, we consider graphics as image enhancements – such as lines, boxes, backgrounds, art, clip art, scanned images, photographs, etc. Graphs, on the other hand, refer specifically to numerical types of charts, such as pie or bar charts.

The number and types of graphing programs has increased geometrically in the past five years. Today, the digital business manager begins with some data and explores relationships by graphing these data in 2D or 3D and in bars, lines, pies, area, bullets, spider, pictographs and a sundry of combinations. To explore and discover relationships among and between data segments is becoming the most important analysis tool a manager can have. I call it "new knowledge," where you derive new conclusions from the same data. Business graphics packages like **Harvard Graphics, Powerpoint** and **Delta Graph** provide a myriad of analytical graph templates. These packages also act as "receptacles" for graphics developed in a myriad of other packages giving a presentation a professional touch.

These software packages offer all of these tools and the ability to link the analyses together easily and quickly. Moreover, statistical packages like **SPSS (Statistical Package for the Social Sciences)** allow the user to do

survey analysis and immediately build a normal curve. Again, the purpose is to discover new relationships and new ways of understanding the complexity of today's organizations. Browse the local computer store for analysis software that may give you the edge. Generally, these packages are easy to learn and provide quick results.

3. Mapping

A relatively new entrant to the field of analysis is computer mapping. Given the growing importance of on-line data bases, the ability to utilize data in a geographic way yields important information about the community, regional or national context of the data. Mapping software used to be the domain of governments for demographics and geophysical data. Today, a geographic information system (GIS) is an important part of a manager's toolbox because of the usefulness associated with visually examining a map of an area using your own spreadsheets of data. In fact, both **Excel** and **Lotus** now have mapping capabilities within their spreadsheet packages. The ability to link current and future projections of data onto a map is becoming a vital tool for digital business managers. **MAPINFO** and **ARCVIEW** are two programs that do this.

4. Authoring

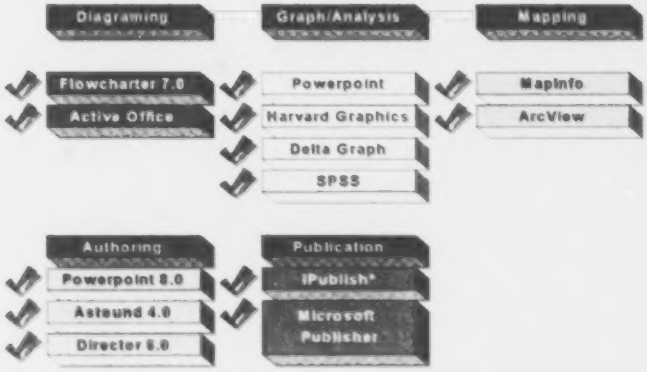
We hear much about authoring software. There are three levels of authoring packages. Level 1 is the **automated authoring** level. The software provides templates that are visually stimulating and powerful, having been created by field researchers and artists. This software provides working tips as you move and will even give you a variety of quick and professional presentations already made. Run, don't walk, to purchase these packages if you are just starting. Again, **Powerpoint, Freelance Graphics, Harvard Graphics,** and **WordPerfect Presentation** all have these automated author concepts.

The **Selective Authoring** packages offer all of these capabilities, along with a few more multi-media bells and whistles. Adding motion to objects brought in from your diagraming, mapping and graphics programs allows you to build your presentation using more sophisticated tools from a variety of sources, selectively putting your message together using the presentation package as a receptacle for your other computer software resources. A good example of the next step in authoring might be GoldDisk's **Astound** program.

The **Professional Authoring** packages allow the presenter to do automated and selective authoring as well as create new templates, infuse filmmaker effects and create sophisticated, professional presentations, pushing the multi-media envelop into 3D, fractal graphics and morphing effects. Television graphics are at this level. However, we are quickly moving toward packages such as **Director** (from Macromedia) because of the ability to perform greater effects that enhance presentations. There also are companies that will produce your presentation for you. In fact, who would have thought three years ago that we would be able to perform some of what we see on CNN or ABC News on our own computers! The presentation enhancement capabilities are just beginning for the multi-media administrator.

One last point. The written word will not go out of style because you are using multimedia. However, some software, like **Microsoft's Publisher** and **iPublish** are terrific packages that easily help you construct professional looking reports, letters, brochures, Faxes and a myriad of other writing platforms. These authoring packages are self-instructive, and you will be surprised at the sophisticated level of report generation you can produce for your school system, board and community without a great deal of time investment. Figure 5, below, summarizes these packages.

Figure 5. The Digital Business Manager's Software Toolbox



BEST COPY AVAILABLE

Your Image Also Makes the Difference: 6 Personal Multimedia Checkpoints

Authoring and presentations have one or more objectives: to inform, teach, motivate or persuade. In fact, almost anything you wish to communicate in the form of a presentation will have some element of persuasion in it. If you want your audience to accept you and the ideas you espouse, you need to be prepared-both personally and professionally. (Arrendo, 1994)

1. Appearance

An audience will immediately begin to form an impression of you the moment you enter the room. While many aspects of physical makeup cannot be changed, the style of clothes you wear will contribute to your image. For instance, does your attire fit in with an art deco crowd, or the professional image of the the audience? Think about the formality of the presentation situation when you select the clothes you wear. Think about how your audience might dress. If in doubt about your attire, be conservative. Your grooming and physical hygiene reflect how you feel about yourself. Be sure you reflect a caring, "together," image.

2. Attitude

Your enthusiasm and positive attitude will be contagious. If you lack enthusiasm, you cannot expect your audience to readily accept your ideas and be enthusiastic. The image you project will suffer.

3. Mannerisms

Mannerisms often show whether you are decisive and in control. The audience should see your assurance. If you are uncertain of yourself, nervous mannerisms will give away your lack of self confidence.

4 Preparedness

Being prepared is a way of winning an audience and influencing their decisions. After all, if you have done your homework, you stand a much better chance of being able to influence them into your way of thinking.

5. Confidence

Confidence shows an audience that you believe in yourself and whatever it is you are representing to them. You must have confidence and high self-esteem (or give the image that you do) to gain the confidence of the audience.

6. Multi-Media Visuals

The multi-media you use in your presentations will also contribute to your image. They will help the audience form an opinion of your personal characteristics and credibility. Their appearance can project a favorable and impressive image. Visuals can also help you display enthusiasm by including real life or drawn images to project the type of attitude you desire. By using visuals, you may find that your nervous mannerisms disappear because the audience's attention will be diverted periodically as you speak. However, you do have the responsibility to learn and follow good audio-visual techniques in using them.

When you use well-prepared visuals, your confidence level improves. Your visuals can provide an outline for you as well as your audience, letting you avoid nervously holding note cards. The time you spend organizing your thoughts and developing your visuals increases your preparedness. Actually, if you accidentally lost your visuals on the way to the presentation, chances are you would give a better presentation because of the organization and planning required to develop the visuals. This extra work undoubtedly gives you more familiarity with and confidence about the subject on which you are presenting.

The Multi-Media Administrator's Responsibility: Advantages and Disadvantages

Times have changed! Centuries ago, speakers used a megaphone to project their voices through a gathering of people; additionally, they could draw pictures in the sand or on a stone. Until a few years ago, speakers operated in a relatively similar manner. If their presentation needed amplification, they used microphones to project their voices instead of megaphones. If they wanted to share written messages, they used blackboards or they provided typewritten handouts to the audience. Today, speakers are presenters who have at their disposal a vast array of up-to-date tools. But, there are advantages and disadvantages to the technology.(Burger, 1995)

1. Advantages

The advantages of computer-based shows are many. Very professional shows in full color are possible. Many of the specialized software programs have a screen or slide-show option that allows you to program how the images will advance. The user might key in the number of seconds between

visuals, advance to the next image by clicking any key on the computer or go to a specific slide by simply keying in its number. Information can be modified spontaneously to reflect new data or audience input. Many presentation programs include dramatic special effects or transition possibilities that are used when the screens change to the next image. These special effects can be fades, wipes or dissolves, similar to those used in a television studio.

2. Limitations

The main limitation of a computer-based show is the expense of hardware, software and peripherals. Because this technology is advancing so rapidly, equipment will become obsolete rapidly. The equipment may not be available in the right place at the right time. For instance, visuals carried to a meeting on a disk are useless if compatible equipment is not available to project the contents of the disk. Presenters also may find that their presentations are relatively inflexible.

Some Final Thoughts

Technology has opened the door for a variety of changes in both preparing and delivering presentations for meetings and training. Computer-generated visuals are now possible using a variety of software programs. Technological equipment, including color printers and copiers, scanners, film recorders, optical disks, LCD panels and video/data projectors, is being used to design and deliver presentations for meetings as well as training sessions. Multimedia presentations integrate text and graphics, color, sound, animation, video and interactivity to communicate information, express imagination and gain audience involvement.

Changing to new methods made possible by technology can be a challenge. Yet, benefits such as improved information quality and image are important. Learning new things may be thrilling, frightening, and time consuming all at once. Since using new technology requires a learning curve, your productivity may initially be decreased rather than increased. However, at the end of the learning curve, your persistence will be amply rewarded!

Bibliography

Adams. J. (1995) *Conceptual Blockbusting*, New York: Addison-Wesley

Annelli, J., S. Otto, and C. Reigeluth (Sept. 1992) "The Electronic School: Technology and School Restructuring," *The American School Board*

Arrendo, L. (1994) *Business Presentations*, New York: McGraw-Hill

Barker, J. (1991) *Future Edge: Discovering the New Paradigms of Success*, New York: W. Morrow.

Barth, R. (1991) *Improving Schools from Within*, San Francisco: Jossey-Bass.

Beels, C.C. (1979) Personal communication

Bennis, W., Shepard, H: (1974) A Theory of Group Development in *Analysis of Groups*, edited by G. Gibbard, J. Hartman, and R. Mann, San Francisco Jossey-Bass

Berryman,S and Bailey T.(1993) *The Double Helix of Education and the Economy*, New York, Teachers College Press

Bion, W.R. (1961) *Experiences in Groups*, New York: Basic Books

Bolman, L.G. and T.E. Deal (1991) *Reframing Organizations*, San Francisco: Jossey-Bass

Bonan, J., T. Hill, and K. Warner (March 1992) Uplifting American Education, *The American School Board*

Boone, M. E. (1991) *Leadership and the Computer*, California: Prima Publishing

Bosting, J. (1992) *Schools of Quality, An Introduction to Total Quality Management in Education*, Alexandria, Va.: Association for Supervision and Curriculum Development

Bostin, J., (March 1992) The Total Quality Classroom, *Educational Leadership*

Boyett, J, and Conn, H.(1992) *Workplace 2000*, New York: The Penguin Group

Brandt, R., (September 1992) On Building Learning Communities: A Conversation with Hank Levin, *Educational Leadership*

Bronowski, J., (1973) *The Ascent of Man*, London: British Broadcasting Corporation

Bruder, I., (1989) Future Teachers: Are They Prepared? *Electronic Learning*

Bugelski, B.R. (1971), *The Psychology of Learning Applied to Teaching*, Indianapolis: Bobbs-Merrill

Burger, J.(1995) *Multimedia for Decision Makers*, New York: Addison-Wesley

Burke, W., (1986) "Leadership as Empowering Others" *in Executive Power: How Executives Influence People and Organizations*, San Francisco: Jossey Bass

Burns, L. and Howes, J., (August 1988) Schools, *The School Administrator*

Burlingame, M., (1986) "Theory into Practice: Educational Administration and the Cultural Perspective", in *Leadership and Organizational Culture*, ed. By T.J. Sergiovanni and J. Corbally, Chicago: University of Chicago Press

Burrus, D., (1993) *Technotrends*, New York: Harperbusiness

Callenbach, R. et al., (1993*) EcoManagement: the Elmwood Guide to Ecological Auditing and Sustainable Business*, San Francisco: Berrett-Koehler

Carlson, R. and Awkerman, G., (1991) *Educational Planning*. White Plains, NY: Longman Publishing Group

Cetron, M., Davies, O. (September-October 1991) Trends Shaping the World, *The Futurist*

Chiros, D.,(1988) *Environmental Science A Framework for Decision Making*, Menlo Park, California: Benjamin/Cummings Publishing

Clarke, A.(1962) *Profiles of the Future: An Inquiry Into the Limits of the Possible*, New York: Holt, Rinehart and Winston

Coleman, J. and Hoffer, Y., (1987) *Public and Private Schools*, New York: Basic Books

Comer, J. (1980) *School Power: Implications of an Intervention Project*, New York: Macmillan

Conley, Sharon and Samual Bacharach, (March 1990) From School-site Management to Participatory School-site Management, *Phi Delta Kappan*

Cothran, Tom (July 1989) The Value of Visuals, Presentation Technologies, Supplement to *Training*

Czeschin, Robert, (1994), *The Last Wave*, Boca Raton, Florida:Shot Tower Books

David, Jane L., (May 1989) Synthesis of research on school-based management, *Educational Leadership*

Davis, S. And Davidson, W.,(1991) *20/20 Vision*, New York: Simon and Schuster

Dede, C. (September 1992), The Electronic School: Making the Most of Multimedia, *The American School Board Journal*

DePree, Max, (1989) *Leadership Is an Art*, New York: Dell Publishing

Devall, Bill, (1993) *Living Richly in an Age of Limits*, Salt Lake City: Gibbs-Smith Publisher

Dickinson, D. (September 1992) Multiple Technologies for Multiple Intelligences, *The American School Board Journal*

Drucker, P., (1967) *The Effective Executive*, New York: Harper and Row

Drucker, P., (1992) *Managing in Turbulent Times*, New York: Harper and Row

Drucker, P., (1989) *The New Realities*, New York: Harper & Row

Drucker, P., (July-August 1989) What Business Can Learn from Non-Profits, in *Harvard Business Review*

Dryfuss, G., (August 1988) Dade County Opens Doors to Site Decisions, *The School Administrator*

Ecclesine, A. (December 1990) Editor's Forum, *Publish*

Ferguson, M.(1987) *The Aquarian Conspiracy: Personal and Social Transformation in the 1980s*, New York: J.P. Tarcher

Freud, S. (1960) *Group Psychology and the Analysis of Ego*, New York: Bantam Books

Finney, Robert,(1993) *Powerful Budgeting*, New York: Amacom Publishing

Fullan, M.G. (1991) *The Meaning of Educational Change*, New York: Teachers College Press

Gardner, J., (1990) *On Leadership*, New York: Free Press

Gardner, H. (1985) *Frames of Mind: The Theory of Multiple Intelligences*, New York: Basic Books

Geisert, G. (November 1988), Participatory Management: Panacea or Hoax? *Educational Leadership*

Gilder, George (March-April 1991) Into the Telecosm, *Harvard Business Review*

Glickman, C.D. (September 1990) Pushing School Reform to a New Edge: the Seven Ironies of School Empowerment, *Phi Delta Kappan*

Gilster, P., (1994) *Finding it on the Internet*, New York: J.Wiley and Sons

Goodlad, John (1984) *A Place Called School*, New York: McGraw Hill.

Goodstein, L., Nolan, T. and Pfeiffer, J. William (1993) *Applied Strategic Planning*. New York, NY: McGraw Hill

Gomez-Ibanez, J. and Kalt, J. (1990) *Cases in Microeconomics*, Englewood Cliffs, NJ: Prentice-Hall

Grantham, Charles E. (1993) *The Digital Workplace*, New York: Van Nostrand Reinhold

Green, Ronald E. (October 1984) The Persuasive Properties of Color, *Marketing Communications.*

Guthrie, J.W. (December 1986) School Based Management: the Next Needed Educational Reform, *Phi Delta Kappan*

Halberstam, D., (1991) *The Next Century* New York, NY: William Morrow and Company, Inc.

Hallinger, P., K. Leithwood and J. Murphy, eds. (1993) *Cognitive Perspectives on Educational Leadership*, New York: Teachers College Press

Hammer, Michael and Champy, James, (1993) *Re-Engineering the Corporation*, New York: Harperbusiness

Harman, W. (1976) *An Incomplete Guide to the Future*, New York: San Francisco Book Co.

Harrison, C., Killion, J., and Mitchell, J., (May 1989) Site-based Management: the Realities of Implementation, *Educational Leadership*

Hartman, W. (1988) *School District Budgeting*, Englewood Cliffs, N.J.: Prentice-Hall, Inc.

Harvard Business Review (1991) *The Best of the Harvard Business Review*, Harvard University Press

Henning, M., Jardim, A. (1977) *The Managerial Woman*, New York: Doubleday

Hentschele, G., (1995) *Management Operations in Education*, Berkeley, Calif: McCutchan Publishing

Hill, P.T., Bonan, J. and Warner, K., (March 1992) Uplifting Education, *American School Board Journal*

Hoyle, J., (January 1989) Preparing the 21st Century Superintendent, *Phi Delta Kappan*

Horsley and Buckley, (1990) *Nippon – New Superpower*, London: BBC Publications

Hudson, W., *Intellectual Capital*. New York: John Wiley & Sons, 1993

Hughes, J. (1997) *The Multimedia Administrator: Planning, Preparing and Presenting School Budgets*, New York, Cummings and Hathaway, Inc.

Hughes, J. (April,1997) The Digital Administrator's Multi-media Toolbox, *Keypost, Journal of the New Jersey Association of School Business Officials*

Hughes, J.(October, 1997) The Digital Business Manager, *School Business Review, Journal of the Association of School Business Officials International*

Hughes, J. and Richards, C. (1995), *The New Ecology of Financial Management: Theory, Tools, and Cases*, New York: University Press of America (In Process)

Hughes, J., (1991-95) from Class Notes and Lectures from *Summer Institute in Management Systems*, New York: Teachers College, Columbia University

Kane, P. (1992) What is an Independent School? In P. Kane, ed., *Independent Schools, Independent Thinkers*, San Francisco: Jossey-Bass

Kennedy, P.,(1993) *Preparing for the 21st Century*, New York: Random House

Kerr, T., (May 1991) Spreadsheet Madness: Planning the School Budget, *School and College*

Kestin, H.,(1992) *21st Century Management*. New York: Atlantic Monthly Press

Kotter, J., (May-June, 1990) "What Leaders Really Do", in Harvard Business Review

Kubick, K.,, School-Basic management, ERIC Digest Series, Number EA 33

Kuhn,T., (1994) "The Structure of Scientific Revolutions," in *The Incommensurability Thesis* by Howard Sankey, Brookfield, Vt.: Ashgate Publishing Co.

Kupsh, J., (1975) The Effectiveness of Synchronized Sound-Slide Packages in Beginning Typing, Unpublished doctoral dissertation, Arizona State University, Tempe.

Kupsh, J. and Graves, P.(1994) *How to Create High Impact Business Presentations*, Lincolnwood, Ill.: NTC Publishing Group

Leibfried, K., and McNair, C.(1992) *Benchmarking*. New York:Harper Collins

Lindstrom, Robert (November 1990) Podium, *Presentation Products Magazine*

Lindstrom, Robert (1994) *The Business Week Guide to Business Presentations*, New York: McGraw-Hill

Makridakis, S.,(1990) *Forecasting, Planning and Strategy for the 21st Century*, New York: The Free Press

Malen, B., Ogawa, R.T., Kranz, J. (February 1990) Site-based Management's Unfulfilled Promise: Evidence Says Site-based Management is Hindered by Many Factors, *The School Administrator*

Managing the Non-Profit Organization, Principles and Practices (1990) New York: Harper Business

Maynard, H. and Mehrtens s., (1996) *The Fourth Wave: Business in the 21st Century*, San Francisco: Berrett-Koehler

McCollum, M. (1990) Group formation: Boundaries, Leadership, and Culture, in Gillette, J. and McCollom, M., *Groups in Context*, Reading, Mass: Addison-Wesley

McConaghy, T. (February 1989) The Quiet Revolution: School Based Budgeting, *Phi Delta Kappan*

McCormack, M.H. (1984) *What They Don't Teach at Harvard Business School*, New York: Bantam Books.

McDonald, Joseph P., (1992) Steps in Planning Backwards: Early Lessons, Coalition of Essential schools, Exhibition Project, Providence, R.I.

Meadows, B.J. (March 1990) The rewards and risks of shared leadership, *Phi Delta Kappan*

Miller, T., (1992) *Living in the Environment*, Belmont, California: Wadsworth Publishing

Nadler, G. and Hibino, S.(1990) *Breakthrough Thinking*. Rocklin, CA: Prima Publishing

Naisbitt, J. and Aburdene, P., (1982) *Megatrends 2000: Ten New Directions for the 1990s*, New York: Warner Books

Naisbitt, J., (1994) *Global Paradox*, New York: Morrow

Nelson, R., (April 1989) CEOs: Computing in High Places, *Personal Computing*

Oppenheim, L., (1981) Study of the Effects of the Use of Overhead Transparencies on Business Meetings. Philadelphia: Wharton Applied Research Center, Wharton School, University of Pennsylvania

O'Toole, D. and Marshall, J. (1990) Budgeting Trends: Implications for the Future, *School Business Management in the 21st Century*, Reston, Va: Association of School Business Officials International

Pajak, E. (1993) Change and Continuity in Supervision and Leadership, *Challenges and Achievements in American Education*

Patterson, J.L., Purkey, S.C., Parker, J.V. (1986) *Productive School Systems for a Nonrational World*, Alexandria, Virginia: ASCD, no. 611-86022.

Pepper, J. (May 1990) What kind of manager are you? Your computer knows. *Working Woman*

Peters, T. and Austin, N. (1985) *Passion for Excellence*, New York: Warner Books, Inc.

Pinchot, G. and Pinchot, E.(1993) *The End of the Bureaucracy & The Rise of the Intelligent Organization*. San Francisco: Berrett-Koehler, Inc.

Reich, Robert, (January 1989) *Must New Economic Vigor Mean Making Do With Less?* National Educational Association

Reigeluth, C.M., Annelli, J.M., and Otto, S.L. (September 1992) Technology and School Restructuring, *The American School Board Journal*

Rosenblum, E.H. (1982) Groupthink: One Peril of Group Cohesiveness, J. Nurs. Adm. 12:4:27-31

Rhodes, L., (February 21, 1986) Memo to the High School Futures Network, Correspondence, published in Patterson, Purkey, and Parker, op. cit.

Schein, E., (1992) *Organizational Culture and Leadership*, San Francisco: Jossey-Bass

Schwartz, P.(1991) *The Art of the Long View*, New York, NY: Doubleday

Senge, P. (1990) *The Fifth Discipline: The Art and Practice of the Learning Organization*, New York: Doubleday

Schmoker, M. and Wilson, R. (1993) *Total Quality Education, Profiles of Schools that Demonstrate the Power of Deming's Management Principles*, Bloomington, Indiana: Phi Delta Kappan

Sizer, T. (1989) Diverse Practice, Shared Ideas – the Essential School. In *Organizing for Learning toward the 21st Century*, edited by Walberg and Lane. Reston, Va.: National Association for Secondary School Principals

Smith, Adam, (1975) *Powers of Mind*, New York: Random House

Stone, D., (1988) *Policy Paradox and Political Reason*, New York: Harper-Collins

Strebel, P., (1992) *Breakpoints*, Harvard Business School Press, Boston

Taylor, B.O., Levine, D.U. (January 1991) Effective School Projects and School-based Management, *Phi Delta Kappan*

Timar, T.B. (1989) The Politics of School Restructuring, *Journal of Education Policy*

Tucker, R., (1991) *Managing the Future*. New York, NY: G.P. Putnam's and Sons

Vogel, D., Dickson, G., Lehman, J., and Shuart, K. (1986) *Persuasion and the Role of Visual Support: The UM3M Study*, Minneapolis: Management Information Systems Research Center, School of Management, University of Minnesota

Wagner, T., (1993) System Change: Rethinking the Purpose of School, *Educational Leadership*

Wang, C., (1994) *Technovision*, New York: McGraw-Hill

Ward, A., (September 1992) A Brave New Information World, *The Electronic School*

Weizenbaum, J. (1976) *Computer Power and Human Reasoning*, California: W. H. Freeman & Co.

Wells, L. (1990) The Group as a Whole: a Systemic Socioanalytic Perspective on Interpersonal and Group Relations, in Gillette, J., and McCollom, M., *Groups in Context*, Reading, Mass: Addison Wesley, ch. 3

Wiegner, K., (October 15, 1990) Data and Vision, *Forbes*

Yalom, I: (1985) *Theory and Practice of Group Psychotherapy*, New York: Basic Books

Zeleznik, A. (March-April 1992) Managers and Leaders: Are They Different? *Harvard Business Review*

Zuboff, S., (1988) *In the Age of the Smart Machine*, New York: Basic Books

About the Authors

Over the past 25 years, **Professor Jonathan T. Hughes** has been a mathematics teacher, department chair, director of management information systems, IBM programmer, assistant superintendent for personnel, finance and administration and university professor in several public and private educational settings in Massachusetts, New Jersey, Connecticut and New York. He was most recently an associate professor of management science at Teachers College, Columbia University and now is serving in the same capacity at Dowling College, which has been granted a state charter to implement its first doctoral program in Educational Administration in Suffolk County on Long Island.

He is a well-known speaker and lecturer on technology and data analysis and has a rich background in the educational, financial and strategic planning components of school operations. He also concentrates on using technology to help create a strong public image for institutions through data analysis and presentation.

Professor Hughes has written extensively about school district management, planning and governance issues. He is author of *The Multimedia Administrator* (Cummings and Hathaway, 1997), the primary author of *Understanding Educational Planning* (Connolly-Cormack, 1997) and the co-author of *Boards at Their Best* (Connolly-Cormack, 1995), all of which concentrate on merging new analytical skills with new technologies for both the current and future generation of educational leaders.

He is also the author of a number of published articles on school district management techniques including "Building new knowledge for school quality improvement," "Decision mapping leads to decision making," "The digital manager's multimedia toolbox," "Using benchmarking to analyze maintenance and operations efficiency," "Getting to the handshake: A partnership primer," Multimedia school budget presentations," "Using geographic information systems for administrative decision making," "Multimedia caveats, and "The administratively effective school district." Recently, Dr. Hughes completed a series of case studies based on school district research projects on which he served as princi-

pal investigator. The series is used for advanced graduate course in School Business Administration at Dowling College.

Dr. Hughes has been a lead researcher and consultant for a number of international, national and regional school systems and educational organizations, including The Futures School (Cairo, Egypt), The International School of Panama, The Baldwin School of Puerto Rico, The Caribbean Preparatory School (St. Thomas), San Francisco, CA, Nazareth, PA, Saucon Valley, PA, Summit, NJ, Westfield, NJ, Paterson, NJ, Pearl River, NY, Nyack, NY, Clarkstown, NY, South Orangetown, NY, Nanuet, NY, and more than 50 school districts on Long Island, NY.

Professor Hughes earned his bachelors degree in mathematics from Ithaca College, a masters in mathematics education from Harvard University and his M.Phil., M.Ed., and Ph.D. from Columbia University.

About the Authors

Dr. Karl Rodabaugh has served educational entities for nearly 30 years as a school teacher, college professor, and administrator in Illinois, Florida, New Jersey and North Carolina. Before accepting an appointment as director of lifelong learning at Catawba College in Salisbury, NC, Dr. Rodabaugh directed the New Jersey Association of School Business Officials' statewide continuing education and professional development programs. Earlier, he directed nationally recognized (and financially self-supporting) continuing education and public service programs at Florida International University (Miami, FL), the University of West Florida (Pensacola, FL), and East Carolina University (Greenville, NC).

While holding concurrent tenured appointments as a professor of history, Dr. Rodabaugh has served as a multidisciplinary department chair, executive director of RMA-ECU Commercial Lending School, and coordinator of ECU's grant-funded Project on Local Life. He has also served at several different institutions as a visiting professor of history, environmental studies, and government; and he has served on the editorial boards of several scholarly journals. His contributions as chair of ACHE's national committee on educational technology earned NSCCE's distinguished service award in 1988; he received service awards from ECU in 1981 and 1986, and from FIU in 1994. He has authored, co-authored, or edited numerous books, handbooks, and curriculum guides on topics as diverse as school business administration, the populist movement, energy conservation, and school health, environmental, and safety issues. He has also published more than 30 articles in such professional journals as *School Business Affairs, Journal of Continuing Education, Managing School Business, Social History-Historie Sociale, Alabama Review*, and *Southern Studies.*

Dr. Rodabaugh earned his doctorate in history from the University of North Carolina at Chapel Hill. Currently, he is also an adjunct professor of leadership and educational studies at Appalachian State University in Boone, NC.